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IN THIS ISSUE

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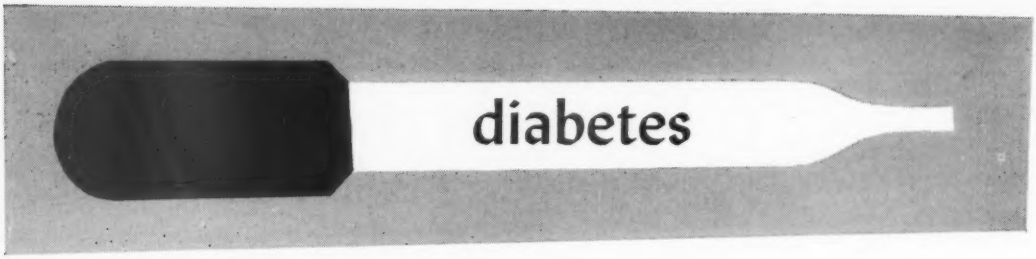

"the ideal detection center is the office of the family physician"[1]

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1. Blotner, H., and Marble, A.: New England J. Med. *245*:567 (Oct. 11) 1951.
2. Steine, L.: GP *8*:45 (July) 1953.

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LETTERS

Exhibit on Accidental Poisoning

DEAR SIRS: I thought you might be interested to know that we built a very striking library exhibit around an article in the current issue of THE BULLETIN, "Accidental Poisoning in Children" by B. E. Conley.

The exhibit was suggested by Dr. Douglas Johnson of the Pharmacology Department. He also loaned us his copy of THE BULLETIN so that the Library's copy could be used in the exhibit and there would still be one available for students to read.

One copy of THE BULLETIN was displayed open to the first page of the article. On the other side of the display area several examples of common household items dangerous to children were arranged, a box of aspirin, a can of Drano, and unlabeled prescription bottle, a prescription bottle with label defaced, etc. Prominently centered in the display was a correctly labeled prescription poison as it should come from the pharmacist. Also tied into the display were several books on poisons and emergency treatment. A row of skull-and-crossbones cut from construction paper marched ominously across the top of the exhibit. The whole thing was carried out in the same red and black which were used in the article.

It made a most effective display and was much commented on by those who came into the Library. Thanks for this article and for the whole stimulating issue.

MARTHA JANE K. ZACHERT, *Librarian*
H. Custer Naylor Library
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223 Walton Street, N. W.
Atlanta 3, Ga.

Appreciates Publications

DEAR SIRS: Enclosed please find check to cover the cost of the following publications . . . Thank you very much. This service is greatly appreciated and I am continually looking forward to the next issue of THE BULLETIN. My only regret is that it cannot be published each month.

CLIFTON F. LORD, JR.
University of Buffalo
School of Pharmacy
Buffalo 14, N. Y.

Interested in Formulary Service

DEAR SIRS: By now you have probably received the formularies which were sent to us on loan. Our Committee greatly appreciated this service and the members would like to have the *Hackensack Hospital Formulary* for a period of five weeks. If your policy will permit this request, we are most anxious to have the copy for a basis in compiling a formulary for our hospital.

Mr. Beck, our zealous president, informed members of the Midwest Association of Sister Pharmacists regarding the proposed formulary service. Indeed, such a project has been the desire and hope of the busy pharmacist. May this plan become a reality in spite of the many intricate problems.

Thank you for your cooperation. It means so much to be able to have a well organized national association on which we can call for help.

SISTER M. CHERUBIM, *O.S.F.*
St. Joseph's Hospital
Joliet, Illinois

Placement Service is Helpful

DEAR SIRS: Thank you for your accommodating help in contacting qualified individuals for the present vacancy in our hospital for a registered staff pharmacist. Contacts are now being made.

I shall also appreciate your sending me the names and addresses of other such people you may learn about. Further, I should like to request that you include a note in the Positions column of the forthcoming issue of THE BULLETIN.

JOHN M. BOYER, *Director*
Personnel Community Relations
Aultman Hospital
Canton, Ohio

DEAR SIRS: Thank you for your letter offering to be of assistance to us in securing a full time chief pharmacist. We will certainly appreciate your inserting an item in THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

BURTON M. BATTLE, *Administrator*
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EDITORIAL

National Association of Boards of Pharmacy-Fiftieth Year

by DON E. FRANCKE

When the National Association of Boards of Pharmacy convenes in Boston in August it will celebrate its fiftieth anniversary. Founded in 1904 during the Kansas City meeting of the A.Ph.A., the National Association of Boards of Pharmacy has exerted an evergrowing influence upon pharmacy in America.

The principal objectives of the N.A.B.P. are to provide for interstate reciprocity in pharmaceutic licensure and to improve the standards of pharmaceutical education and licensure. The success of the N.A.B.P. in the attainment of these objectives is too well known to require further comment. However, the N.A.B.P. has had much more far-reaching influence in the profession than the attainment of these objectives imply. Of major importance is the forum which it provides each year at its annual convention for the free exchange of ideas among members of the individual state boards of pharmacy. These meetings have contributed greatly to broadening the knowledge and viewpoint of state board members as well as indoctrinating them in some of the fundamental public health objectives of the boards. The District meetings of the Boards and Colleges of Pharmacy, also sponsored by the N.A.B.P. in cooperation with the A.A.C.P., provide additional opportunities for college faculty and board members to attain a much needed understanding of the role each plays in our profession.

To its credit, the N.A.B.P. first proposed the American Council on Pharmaceutical Education as well as the Pharmaceutical Survey. The former, the accrediting agency for colleges of pharmacy, has been instrumental in raising the standards of pharmaceutical education among our colleges, a program which continues to receive well merited attention. The Pharmaceutical Survey constitutes a fundamental contribution to the understanding of the problems of American pharmacy. Some of its comments concerning the importance of boards of pharmacy emphasize the great significance of these agencies to our profession. For example:

> As these boards [of pharmacy] are in any place and at any time, so is pharmacy likely to be in that place and at that time.
>
> The state board of pharmacy is a key instrument of the profession. To safeguard the logical place and performance of the board is to safeguard the profession.
>
> If there is to be a new day for American pharmacy then a new design for the constitutions and functions of state boards of pharmacy is clearly indicated.

During recent years more and more boards of pharmacy have recognized the important role that hospital pharmacy plays in patient care. Tangible evidence of this recognition is the increased interest of the boards in the licensing of hospitals and the now almost uniform practice of granting full credit for practical experience gained in hospital pharmacies.

One of the inherent powers of boards of pharmacy is the power to discipline practitioners for conduct which is unprofessional, unethical, or illegal. While it is true that boards of pharmacy do prosecute cases involving gross violation of the law, they are slow to act in instances involving unprofessional or unethical conduct. We have not developed, in the United States, the type of well organized plans for the self discipline of the profession as exists in Britain, France and other European countries. Part of the reason for this, of course, lies in the more effective organizational pattern for pharmacy which has been developed in European countries. Nevertheless, it would seem possible and desirable to adapt some of their methods for dealing with professional conduct to meet the requirements of our individual state boards. For example, the statement upon Matters of Professional Conduct and the Regulations of the Statutory Committee of the Pharmaceutical Society of Great Britain far exceeds in specificity, clarity, and scope any similar efforts made in this country. Neither do we have any body which compares in effectiveness to the disciplinary or statutory committees of the French and British. Thus, although through the efforts of the N.A.B.P., the boards of pharmacy have made great progress, there is still much to be done. Continued efforts must be made to improve examinations for licensure, to establish meaningful requirements for practical experience, to devise a workable method to constantly improve the standards of professional conduct, to modernize the state pharmacy laws, and to steadily improve the qualifications of practitioners who are named to the state boards of pharmacy.

Through its years of service the National Association of Boards of Pharmacy has made many fundamental contributions to our profession. On this fiftieth anniversary the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS extends to the National Association of Boards of Pharmacy its felicitations and best wishes for continued success.

anti-hypertensive DRUGS

by ALBERT L. PICCHIONI *and*
ARTHUR G. UPSON

Hypertension has been defined as an elevation of the intra-arterial pressure above the accepted range of normal. This condition of elevated blood pressure in man, in turn, has been described as a physical sign reflecting a disorder of the vascular system.[1]

At one time it was the general belief that hypertension, once established, was a physiological disturbance "essential" for the maintenance of circulatory function in vital organs of the body, such as the heart, brain, and kidney. The dictum "do not adjust the pressure to the patient, but teach the patient to live in harmony with his pressure" was widely accepted.[2] The present concept of hypertensive vascular disease completely reverses the latter view. The physical changes which take place in the walls of arteries and arterioles are now recognized as sequels of prolonged, abnormal elevations of arterial pressure. Hence, in order to prevent the spread of hypertensive vascular disease, treatment is now being directed towards reducing the blood pressure to a level which will maintain adequate peripheral blood flow and which will not damage the blood vessels.[3]

The most common form of hypertension is "essential" or primary hypertension, which includes all of those cases in which no demonstrable lesions can be established as the cause of the high arterial pressure. It represents a mosaic of altered vasomotor, endocrine, and renal influences, any one of which may be predominant or the primary cause. At least 90 percent of all cases of hypertension fall into this group.[4] It is thought to take second place only to arteriosclerosis in the entire list of organic diseases which affect mankind living under conditions in the United States.[5] Primary hypertension is associated with various categories of clinical severity. The course of the mild form often remains benign for years. On the other hand, at the other extreme is the malignant phase, a fulminating type representing a severe grade of hypertensive vascular disease in which renal involvement is markedly developed.[6] It is known that the malignant form may develop without warning among some patients who previously displayed a mild and static course.[7]

A much less prevalent form of hypertension which is associated with apparent organic changes in tissues is known as secondary hypertension. The high blood pressure in these cases appears as a manifestation of certain recognizable pathological states such as endocrine disorders (thyrotoxicosis, toxemia of pregnancy, adrenal and pituitary tumors), renal disease (glomerulonephritis, pyelonephritis, polycystic disease), and congenital cardiovascular lesions (coarctation of the aorta).[4]

Therapeutic Measures

The lack of adequate therapy for the hypertensive patient has always been a problem of major concern to the physician. It has only been within the past decade that much progress has been made in this field. In the case of individuals afflicted with various forms of secondary hyper-

ALBERT L. PICCHIONI and ARTHUR G. UPSON are respectively Professor of Pharmacology, and Graduate Assistant in Pharmacology, College of Pharmacy, University of Arizona, Tucson.

tension, there have been developed new diagnostic tools and surgical procedures which have been life-saving, particularly if the primary malady is diagnosed in its early stages. On the other hand, the treatment for primary hypertension remains nonspecific due to the fact that the exact etiology of this disturbance remains obscure. The treatment is largely symptomatic or palliative and does not cure the underlying disease. The common denominator with all the therapeutic measures directed towards this form of hypertension is the lowering of blood pressure which results from their application. Nevertheless, it is becoming apparent that this action does confer great benefit to the patient by diminishing the load on the heart, by preventing retinal and cerebral hemorrhages, by relieving the dangerous crises of hypertensive encephalopathy, and even by preventing progressive damage to the arteriolar wall.

The therapeutic measures which have been used for treating primary hypertension may be divided into the following categories:

A. *Surgical Treatment*
   1. Sympathectomy
   2. Adrenalectomy

B. *Medical Treatment*
   1. Psychotherapy
   2. Diet
   3. Drugs

The therapy which is selected will usually depend upon the severity of the disease. As brought out by Page and Corcoran,[3] "the treatment of slowly advancing essential hypertension is quite different from that of the disease in its malignant form. The one situation is urgent and the other not." The treatment of the mild hypertensive patient may consist solely in reassurance, in the better organization of the patient's life at work and at home, in the reduction of obesity, and, often, in mild sedation.[8] In more severe cases, however, the physician may find it expedient to use more drastic measures, such as sympathectomy or the administration of potent antihypertensive drugs.

It is the intention of this article to present a review of the application of merely one of the above therapeutic measures; namely, the use of drugs.

Drug Therapy in Hypertension

An ideal antihypertensive drug would be one that is practical for long-term administration. The drug should, therefore, be effective by the oral route for several hours, and it should remain effective following repeated administration without the appearance of drug tolerance or serious side effects. Further, it should produce a significant lowering of blood pressure in a high percentage of hypertensive patients.

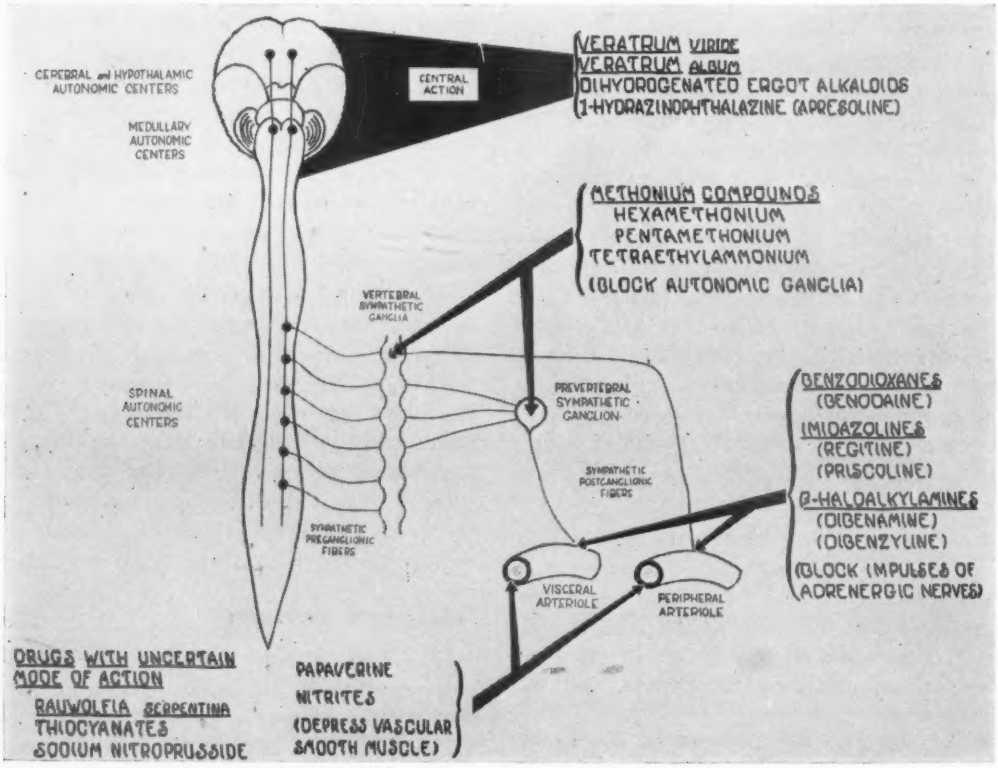


FIG. 1.—A diagrammatic representation indicating the site of action of some of the more important antihypertensive drugs.

While it is true that such a drug possessing all of the above desirable attributes is not as yet available, more progress has been made during the past six years through experimental pharmacology and synthetic organic chemistry towards producing the ideal antihypertensive agent than at any other time. This recent development has proceeded so rapidly that a complete appraisal of these new drugs at this time is not possible. Their value in the treatment of the acute and severe forms of hypertension has been demonstrated; however, their influence on the more chronic and less severe cases will be shown only by prolonged clinical trials.

Classification of Antihypertensive Drugs. Therapeutic agents which have been used clinically in hypertension may be divided into the following groups according to their mode of action:

I. Drugs Affecting Vasomotor Centers Through A Central Action
   A. Drugs causing inhibition of sympathetic vasomotor activity.
      Examples: 1. Dihydrogenated ergot alkaloids
      2. Hydralazine (Apresoline)
   B. Drugs causing activation of afferent impulses resulting in central reflex vasodilation.
      Examples: 1. *Veratrum viride*
      2. *Veratrum album*

II. Drugs Inhibiting Sympathetic Vasomotor Activity Through A Peripheral Action
   A. Ganglionic Blocking Agents.
      Examples: 1. Tetraethylammonium
      2. Pentamethonium
      3. Hexamethonium
   B. Adrenergic Blocking Agents.
      Examples: 1. Phenoxybenzamine (Dibenzyline)
      2. Phentolamine (Regitine)
      3. Piperoxan (Benodaine)
      4. Tolazoline (Priscoline)

III. Drugs Exerting a Direct Depressant Action on Vascular Smooth Muscle
   Examples: 1. Nitrites
   2. Organic Nitrates
   3. Papaverine

IV. Drugs with Uncertain Mode of Action
   Examples: 1. *Rauwolfia serpentina*
   2. Thiocyanates
   3. Nitroprusside
   4. Pyrogens

I. (a). *Drugs Causing Inhibition of Sympathetic Vasomotor Activity Through A Central Action*

Dihydrogenated Ergot Alkaloids. Of the ergot alkaloids, the dihydrogenated derivatives of the ergotoxine group have been most extensively studied as antihypertensive agents. They include dihydroergocornine (DHO 180), dihydroergokryptine (DHK 135), and dihydroergocristine (DCS 190). Hydergine (CCK-179), a mixture of these three hydrogenated alkaloids, is the preparation most widely used clinically. Dihydroergotamine (DHE 45) has not had extensive trial in the therapy of hypertension.

Chemistry. These alkaloids are polypeptide derivatives of lysergic acid in which the 9, 10 double bond of ring D has been hydrogenated (Fig. 2).

Mode of Action. It has been shown that these alkaloids produce a peripheral vasodilator effect primarily as a result of central inhibition of vasomotor tone, the action being exerted on the sympathetic centers in the medulla or hypothalamus.[9] (Fig. 1).

Clinical Efficacy. The effect of these alkaloids on the blood pressure has been reported to be inconstant. There appears to be a wide variation in the responsiveness of the individual. Not all hypertensive patients respond to their administration, and the reductions of diastolic pressure which are achieved are often modest, usually 10 to 20 mm. Hg.[10] Some investigators [11, 12] have revealed a strong tendency for development of tolerance by the patient. On the other hand, these alkaloids have been shown to increase cerebral circulation and thus may relieve headache, dizziness, and visual disturbances even when the blood pressure is not markedly lowered.[13] They possess the advantage of being relatively free of distressing side effects, which usually consist of nasal congestion and, in some cases, nausea.

The intramuscular route of administration is considered to be ten times more effective in eliciting hypotensive action than the oral route.[14] At present these alkaloids are available only for injection.

Hydralazine

Chemistry. This compound, also known as C-5968, 1-hydrazinophthalazine, and Apresoline, is one of the more recent drugs studied as an antihypertensive agent. It belongs to a new group of substances containing a phthalazine ring as shown in Fig. 2.

Mode of Action. The pharmacologic effects of this compound are not well understood. One of its main actions is considered to be sedation of the vasomotor center in the midbrain, an effect which in turn reduces the flow of sympathetic vasoconstrictor impulses from this center.[15] In addition, other investigators[16] have indicated that the drug may act specifically through inhibition of a pressor material of cerebral origin. The participation of humoral vasopressor substances in some forms of neurogenic hypertensive disease has been suggested.[17]

TABLE I. A LIST OF PROPRIETARY ANTIHYPERTENSIVE DRUGS WHICH EXERT A CENTRAL ACTION

TRADE NAME AND COMPANY	GENERIC OR OTHER NAME	*DOSAGE FORMS
	DIHYDROGENATED ERGOT ALKALOIDS	
Hydergine (Sandoz)	None	Parenteral solution containing in each cc., dihydroergocornine 0.1 mg., dihydroergocristine 0.1 mg. and dihydroergokryptine 0.1 mg., as the methanesulfonate salts. Also 0.5 mg. sublingual tablet.
	PHTHALAZINE DERIVATIVES	
Apresoline Hydrochloride (Ciba)	Hydralazine Hydrochloride N.N.R.	10 mg., 25 mg., 50 mg., 100 mg. tablets. Parenteral solution containing 20 mg. per cc.
	VERATRUM ALKALOIDS	
Deravine (Ayerst, McKenna and Harrison)	None	1 mg., 2 mg. tablets of a highly purified fraction containing ester alkaloids of *Veratrum viride.*[1]
Provell Maleate (Eli Lilly)	Protoveratrine A & B Maleates	0.5 mg. tablet of protoveratrine A & B maleates obtained from *Veratrum album.*[1]
Unitensen Acetate (Irwin, Neisler)	Cryptenamine Acetate	Parenteral aqueous solution of the acetate salt of a purified alkaloidal fraction obtained from *Veratrum viride.* Contains 2 mg. (260 C.S.R. Units)[3] per cc., for intravenous or intramuscular use.
Veralba (Pitman-Moore)	Protoveratrine A & B	0.2 mg., 0.5 mg. tablets of protoveratrine A & B obtained from *Veratrum album.*[2]
Veralba Injection (Pitman-Moore)	Protoveratrine A & B	Parenteral solution containing in each cc., 0.2 mg. of protoveratrine A & B obtained from *Veratrum album.*[2]
Verastan (Thompson)	None	100 mg. tablet and an oral liquid containing in 5 cc. 100 mg. of the total activity of standardized *Veratrum viride.*

Trade Name and Company	Generic or Other Name	*Dosage Forms
		Veratrum Alkaloids
Veratrone (Parke-Davis)	None	Solution containing in purified form, 0.25 Gm. of the alkaloids of *Veratrum viride* per 100 cc., for oral use.
Verenteral (Irwin, Neisler)	None	Sterile propylene glycol-water extract of *Veratrum viride* containing 100 C.S.R. Units[3] per cc., for intravenous use.
Vergitryl (E. R. Squibb)	Formerly Anatensol	Tablet containing 1 Squibb Unit of a highly purified fraction containing ester alkaloids of *Veratrum viride*[4].
Vergitryl Intramuscular (E. R. Squibb)	None	Parenteral solution containing in each cc., 1..5 units of the Squibb standard of *Veratrum viride*, with 1% procaine hydrochloride.
Vergitryl Intravenous (E. R. Squibb)	None	Parenteral solution containing in each cc., 0.1 unit of the Squibb standard of *Veratrum viride.*
Veriloid (Riker)	Alkavervir N.N.R.	1 mg., 2 mg., 3 mg. tablets of a purified fraction containing ester alkaloids of *Veratrum viride.*[1]
Veriloid Solution Intramuscular (Riker)	Alkavervir N.N.R.	Parenteral solution containing 1 mg. alkavervir per cc., with 1% procaine hydrochloride.
Veriloid Solution Intravenous (Riker)	Alkavervir N.N.R.	Parenteral solution containing 0.4 mg. alkavervir per cc.
Vertavis (Irwin, Neisler)	None	Tablet containing 130 C.S.R. Units[3] (Approximately 10 Craw Units[5]) of whole-powdered *Veratrum viride.* (Vertavis Half-Strength is also available.)

* Dosage regimen must be standardized for the individual patient.

1. Assayed biologically by determining the degree of blood pressure fall in anesthetized dogs.
2. Total protoveratrine content is standardized by chemical assay.
3. One C.S.R. (Carotid Sinus Reflex) Unit represents the amount of *Veratrum viride* per Kg. of body weight which will just abolish the pressor response to the carotid sinus reflex resulting from occlusion of the carotid arteries in dogs.
4. Standardized by the Carotid Sinus Pressor Reflex method.
5. One Craw Unit is the amount of alkaloids of *Veratrum viride* necessary to stop the contractions of the heart of the crustacean, *Daphnia magna,* under standardized conditions.

The drug induces cardiac stimulation which results in a significant increase in cardiac output. It also causes an increase in splanchnic blood flow, and is unique among antihypertensive drugs in that it increases markedly renal blood flow.[18]

Clinical Efficacy. Hydralazine appears to be most effective in the more severe phases of hypertension, and in hypertension which has persisted following sympathectomy. The use of a low salt diet enhances this activity.[19] The drug has proved beneficial in some patients with hypertensive complications of pregnancy.[20] Tolerance to this compound has been reported to develop in some patients after prolonged administration; however, this effect disappears upon its temporary withdrawal, and the original hypotensive effect is obtained upon resumption of therapy.[21]

Side effects are frequently encountered while administering this drug, and these may appear abruptly at a different dosage level for each patient. The side effects most frequently observed are nervousness, tachycardia, palpitation, nausea, dizziness, and headache. The latter effect, which is particularly disconcerting to the patient, may appear during the first days of treatment but frequently subsides after continued medication.[22] Ergotamine tartrate has been suggested for overcoming the headache caused by this drug.[23] Occasionally, nasal congestion, lacrimation, and urticaria may also occur and such effects are often alleviated with antihistaminic agents.

The drug is best administered by the oral route. The daily dosage, which must be standardized in each patient, varies widely—from 75 to 900 mg. A dose of 200 mg. four times a day is frequently necessary.[13, 16] Parenteral administration of 20 to 40 mg. is sometimes used for the hospitalized patient and when the drug cannot be taken by mouth.[22]

I (b). *Drugs Causing Activation of Afferent Impulses Resulting in Central Reflex Vasodilation.*

1. *Veratrum viride* 2. *Veratrum album*

At one time, veratrum preparations had almost been discredited as therapeutic agents. They had fallen into disrepute mainly because of the inconsistent potency of the galenical preparations of the crude drugs, and because of the false assumption that their pharmacologic actions were due to a toxic effect on the heart and kidneys. In recent years these drugs have regained therapeutic prominence as a result of a better understanding of their pharmacologic effects as well as of the availability of reproducible purified preparations of the crude drugs. Some of the latter are presented in Table I.

Chemistry. Although these plant drugs possess many alkaloids, the hypotensive activity resides mainly in the esterified tertiary alkamines, such as the recently isolated alkaloids, germidine, germitrine, neogermitrine, and protoveratrine. The exact structural chemistry of these compounds is not known, although the structure of the alkamines is now recognized in its main outlines[24] (Fig. 2).

Mode of Action. These drugs act chiefly by inducing a central reflex vasodilation, the afferent fibers of the reflex arc arising in receptor areas located in the left ventricle,[25] the lungs,[26] the carotid sinus,[27] and the intrathoracic region.[27] The action consists of a sensitization of the tension neuroreceptors in these areas to their normal adequate stimulus. As a result, excessive impulses are transmitted centrally and returned *via* efferent nerve fibers to cause bradycardia and hypotension. The efferent nerves causing bradycardia are vagal fibers and this effect on the heart can be blocked by atropine or vagotomy. The efferent nervous pathway through which the hypotensive effect is mediated has not been determined. Known sympathetic nerve fibers are not thought to be involved.[28] Atropine or vagotomy do not significantly alter the hypotensive response.

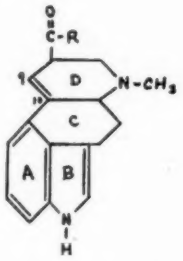
These drugs are also reported to produce a direct action on the central nervous system; however, the mechanism of this action is still obscure. Some investigators[27, 29] have considered the possibility of an action upon additional tension neuroreceptors within the cerebral vascular bed.

Clinical Efficacy. Convincing evidence of the efficacy of the veratrum alkaloids in the prolonged treatment of essential hypertension is not at hand. There have been both favorable and unfavorable reports. It appears that only a limited number of hypertensive patients will respond to or tolerate prolonged oral treatment with the veratrum preparations, and the only way to select these patients is by trial and error.[30] The disadvantage of this treatment lies in the close proximity of the toxic dose, which produces severe nausea and vomiting, to the dose eliciting the hypotensive effect. The range between these two doses often narrows as treatment is prolonged.

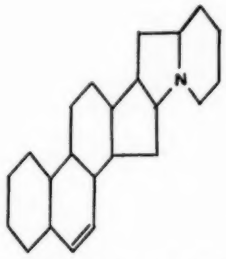
Recently, more favorable results have been reported with protoveratrine, a principal derivative of *Veratrum album*. Hoobler[31] has employed this drug in a single large daily dose without the appearance of emesis or tolerance even after months of treatment.

The veratrum parenteral preparations (Table I) have been used with considerable success in treating certain forms of acute hypertension such as that associated with pre-eclampsia and eclampsia. These drugs are considered to be the most satisfactory drug therapy for the short-term reduction of blood pressure in hypertensive crises.[28] Severe postural hypotension, which follows the

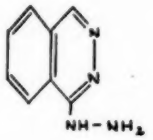
use of other potent antihypertensive agents, does not occur with the veratrum alkaloids. Circulatory equilibrium is maintained despite the lowered arterial pressure, since cardiac output and the supply of blood to the vital organs is not diminished.



Lysergic Moiety Common to the Ergot Alkaloids



Tertiary Alkamine Nucleus of Hypotensive Veratrum Alkaloids



Hydralazine (Apresoline)
1-Hydrazinophthalazine

Fig. 2—Structural chemistry of centrally acting antihypertensive drugs.

II. *Drugs Inhibiting Sympathetic Vasomotor Activity Through a Peripheral Action.*

In the treatment of hypertension, many procedures designed to interrupt sympathetic pathways have been used. Until the last few years, surgical sympathectomy was the chief method by which this was accomplished. At the present time, however, "Chemical Sympathectomy" by means of ganglionic and adrenergic blocking agents has gained increasing popularity.

A. *Ganglionic Blocking Agents*

Chemistry. The methonium compounds are the most important drugs in this group. They are long chain analogues of tetraethylammonium, a quaternary ammonium compound. As shown in Fig. 3, the methonium derivatives have a common structure in which two nitrogen atoms, each with three attached methyl groups, are attached to the opposite ends of a chain of methylene groups. The drugs of this series vary with respect to the number of carbon atoms in the polymethylene chain.

Mode of Action. These drugs have as their main action the blocking of nerve impulses at autonomic ganglia (Fig. 1), apparently by raising the threshold of the ganglion cells to acetylcholine released at the preganglionic nerve endings.

Clinical Efficacy. Tetraethylammonium was the first of this class of compounds to be studied; however, this drug is of limited usefulness in the treatment of essential hypertension, since it must be given parenterally and its action is of short duration. The more recently developed methonium analogues of tetraethylammonium, notably pentamethonium and hexamethonium, produce more prolonged action and are the most potent blocking agents now available.

At the present time, the methonium compounds are considered by many to be the best form of treatment for severe and rapidly progressive cases of hypertension. No other drug currently provides as certain relief in this form of hypertension for so long a period as do these compounds.[32] Chisholm[33] expresses the view that with methonium treatment available there is no longer any place for surgical sympathectomy in the treatment of hypertension. It should be emphasized, however, that these drugs are extremely potent and are potentially dangerous unless they are administered with utmost caution. Annoying side effects often accompany their administration. The most serious reaction, which may occur when the drugs are taken in the erect position, is postural hypotension, and this effect is associated with weakness, faintness, and dizziness. Since parasympathetic ganglionic blockade is also produced with this treatment, constipation, paralytic ileus, urinary retention, anorexia, blurred vision, and dryness of the mouth are other troublesome side effects that may occur.[13]

Hexamethonium chloride is the methonium derivative which is most commonly used clinically in this country. This drug has been given orally and by injection. It is poorly absorbed when taken by mouth and the effective oral dose is at least ten times the parenteral dose. Absorption of the orally administered drug is reported to be irregular and difficult to control. An increase in rate of absorption, such as may occur with constipation, may precipitate severe side effects.[34] Because of this, patients receiving this drug orally are advised to have a bowel movement at least every other day, using laxatives if necessary. Some investigators[6, 35] prefer subcutaneous administration. The patients are instructed in self-injection of the drug like diabetics with their injections of insulin.

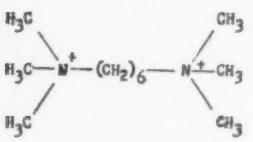
Adjustment of dosage of hexamethonium is a highly individual matter, whether the parenteral or oral route is used. There is considerable variation in dosage required to produce a given drop in blood pressure not only among different individuals, but also in the same individual in cases where tolerance to the drug develops.[35] There is no set dose and the dose must be titrated in each patient in order to avoid excessive hypotension and other side effects.

B. *Adrenergic Blocking Agents*

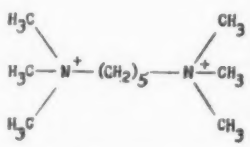
Chemistry. The three classes of chemical compounds possessing adrenergic blocking activity that have been studied as antihypertensive drugs are the *beta*-haloalkylamines, the imidazolines, and the benzodioxanes. The structural chemistry of the individual compounds is presented in Fig. 3.

Mode of Action. These chemical compounds inhibit the effect of the sympathetic mediator at the neuroeffector junction within the cells of the effector organ (Fig. 1). They also effectively block the circulating epinephrine liberated from the adrenal medulla.[32]

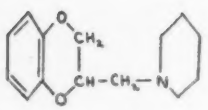
Clinical Efficacy. Of the adrenergic blocking agents, only the *beta*-haloalkylamines, whose action is prolonged by combining irreversibly with the receptors of the effector cells, have shown some promise in essential hypertension. Dibenzyline is the most effective of this group. It is effective orally and is less toxic than its congener, Dibenamine. Up to the present time, it does not appear that sufficient studies have been carried out with this drug to determine its exact place in the hypertensive armamentarium. Various reports so far have attributed to it very limited to moderate usefulness in the management of essential hypertension.[36, 37, 38] Distressing side effects and the development of tolerance appear to limit its efficacy in this treatment. The side effects consist chiefly of nausea, vomiting, nasal congestion, and postural hypotension. Hypotensive reflex tachycardia, which may not be desirable in the treatment of hypertension on a long-term basis, also occurs, since adrenergic blocking drugs do not block the effect of the sympathetic nervous system on the heart.



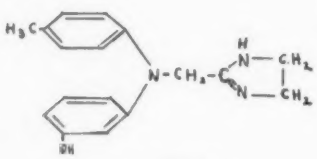
Hexamethonium Ion



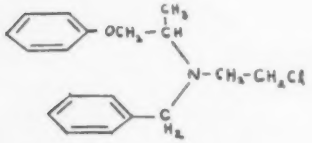
Pentamethonium Ion



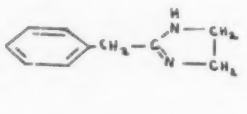
Benodaine



Regitine



Dibenzyline



Priscoline

Fig. 3—Structural chemistry of antihypertensive agents which inhibit sympathetic vasomotor activity through a peripheral action.

The imidazolines and the benzodioxanes have not been useful in long-term treatment, since their action is either too transient or they cannot be given clinically in sufficient dosage to alter significantly sympathetic vasoconstrictor tone.[30, 32]

The main use of the adrenergic blocking agents Benodaine, Dibenzyline, and Regitine in hypertension at the present time is based upon their ability to block the effects of circulating epinephrine. As a result of this action, they have been found very useful for the diagnosis of pheochromocytoma, in preoperative preparation for surgical removal of the tumor, as well as during the operative procedure.[3]

III. *Drugs Exerting a Direct Depressant Action on Vascular Smooth Muscle*

1. *Nitrites* 2. *Organic Nitrates* 3. *Papaverine*

The mode of action of these drugs resembles each other in that they relax the smooth musculature of the arterioles, increasing the vessel diameter and reducing resistance to blood flow.

Although this group of drugs has been available for many years, it has not been outstanding in the treatment of hypertension, especially in the case of prolonged administration. The nitrites are of little value since their action is too evanescent. The organic nitrates have shown the most promise in this group. Erythrityl tetranitrate and mannitol hexanitrate have been used most extensively, often in combination with other antihypertensive agents. When these drugs are used alone the development of tolerance may limit their continued administration. One of the most distressing side effects of these drugs is the occurrence of throbbing headache. Recently a new organic nitrate, inositol (Tolanate) hexanitrate, has been reported to produce significant lowering of blood pressure with small oral doses, presumably by slow release of nitrate.[39] Adequate studies on the chronic administration of this drug are lacking.

Papaverine has not been employed with consistent satisfaction in hypertension, probably because it is destroyed rapidly on entering the blood stream. Intravenous infusions of this drug (0.12 gram per hour for three hours) have been reported to control satisfactorily the acute hypertensive state associated with toxemia of pregnancy.[40]

IV. *Drugs with Uncertain Mode of Action*

1. *Rauwolfia serpentina.* Although this plant drug has been used in India for more than ten years to relieve hypertension, it has only recently been introduced in this country for that purpose.

TABLE II. A LIST OF PROPRIETARY ANTIHYPERTENSIVE DRUGS WHICH INHIBIT SYMPATHETIC VASOMOTOR ACTIVITY THROUGH A PERIPHERAL ACTION

TRADE NAME AND COMPANY	GENERIC OR OTHER NAME	* DOSAGE FORMS
	GANGLIONIC BLOCKING AGENTS	
Bistrium Bromide (E. R. Squibb)	Hexamethonium Bromide	Parenteral solution containing in each cc. 25 mg. of the hexamethonium ion or 33.8 mg. of the anhydrous salt.
Bistrium Chloride, High Potency (E. R. Squibb)	Hexamethonium Chloride N.N.R.	Parenteral solution containing in each cc. 100 mg. of the hexamethonium ion or 135.2 mg. of the anhydrous salt.
Esomid Chloride (Ciba)	Hexamethonium Chloride N.N.R.	250 mg. tablet. Elixir containing 250 mg. per 4 cc.
Etamon Chloride (Parke-Davis)	Tetraethylammonium Chloride N.N.R.	Parenteral solution containing 100 mg. per cc.
Hesalin Chloride (McNeil)	Hexamethonium Chloride N.N.R.	250 mg. tablet. Parenteral solution containing in each cc., 50 mg. of the salt.
Hexameton Chloride (Burroughs, Wellcome)	Hexamethonium Chloride N.N.R.	250 mg., 500 mg. tablets. Parenteral solution containing in each cc., 25 mg. of the hexamethonium ion or 33.8 mg. of the salt. Parenteral solution containing in each cc., 100 mg. of the ion or 135 mg. of the salt.
Methium Chloride, (Warner-Chilcott)	Hexamethonium Chloride N.N.R.	125 mg., 250 mg., 500 mg. tablets.
	ADRENERGIC BLOCKING AGENTS	
Benodaine Hydrochloride (Sharp and Dohme)	Piperoxan Hydrochloride N.N.R.	Parenteral solution containing 2 mg. per cc.
Dibenzyline (Smith, Kline & French)	Phenoxybenzamine Hydrochloride	10 mg. capsules.
Priscoline Hydrochloride (Ciba)	Tolazoline Hydrochloride	25 mg. tablet. Parenteral solution containing 25 mg. per cc. Elixir containing 25 mg. per 4 cc.
Regitine Hydrochloride (Ciba)	Phentolamine Hydrochloride N.N.R.	50 mg. tablet.
Regitine Methanesulfonate (Ciba)	Phentolamine Methanesulfonate N.N.R.	Ampul containing 5 mg. with accompanying diluent.

* Dosage regimen must be standardized for the individual patient.

Large amounts of the crude drug, consisting of the root of the plant, have been imported from India and Malaya by manufacturing pharmaceutical firms and several proprietary preparations of the drug have been made available (Table III).

Chemistry. The chemical nature of the active hypotensive constituents of this drug has not been definitely established. Most of the available proprietary preparations consist of the crude drug or of purified alkaloidal fractions. In the past, several pure crystalline alkaloids have been isolated from the crude drug;[41] however, it is only recently that an alkaloid possessing hypotensive activity was obtained.[42] This pure ester alkaloid, named reserpine, is now commercially available (Table III). The exact chemical structure of this alkaloid has not been determined, but, as shown in Fig. 4, it is believed to be a pentacyclic compound. The exact points of attachment of the functional groups are not yet known.[43]

Mode of Action. The mode of action of this drug is not clearly understood. It is thought to lower blood pressure indirectly through the central nervous system.[44]

Clinical Efficacy. Wilkins[11, 45] has carried out extensive clinical studies with *Rauwolfia serpentina* in this country, and has demonstrated its moderate hypotensive action as well as a mild sedative effect of the drug. He has found it beneficial in the treatment of patients whose hypertension is associated with evidences of severe psychic tension. The moderate hypotensive proper-

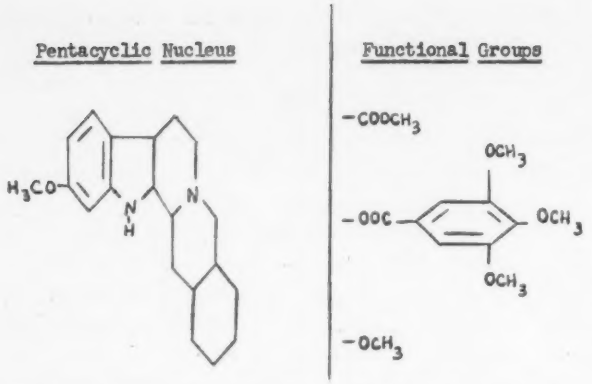


Fig. 4.—Suggested structural chemistry of reserpine, a hypotensive alkaloid in *Rauwolfia serpentina*. The latter is an antihypertensive drug whose mode of action is uncertain.

ties of the drug have been confirmed by others.[46] It has proved most satisfactory in the mild, labile forms of hypertension, particularly when associated with tachycardia. It appears to have few toxic side effects.[45] The drug has little hypotensive effect when given alone in chronic, severe hypertension.[11] The action of the drug is unique in that it may require three to four days to produce any effect, and several weeks to produce its maximal action.[11]

2. *Thiocyanate*—This drug, usually used in the form of its potassium salt, is one of the oldest of the blood pressure reducing drugs that can be demonstrated to be effective. Its mode of action is not known. Recently, Pines and Perera[47] have found that the administration of thiocyanate may cause a sodium diuresis, and they express the belief that this effect may explain, at least in part, its hypotensive action.

This drug has as its main virtue that of relieving severe intractable hypertensive headache, and this relief may occur without a significant fall in blood pressure. In order to avoid the appearance of

TABLE III. A LIST OF PROPRIETARY ANTIHYPERTENSIVE DRUGS WITH UNCERTAIN MODE OF ACTION

TRADE NAME AND COMPANY	GENERIC OR OTHER NAME	DOSAGE FORMS
	RAUWOLFIA SERPENTINA	
Raudixin (E. R. Squibb)	Rauwolfia Serpentina	50 mg. and 100 mg. tablets of the whole powdered root of *Rauwolfia serpentina.*
Rauwiloid (Riker)	None	2 mg. tablet of the alseroxylon[1] fraction of *Rauwolfia serpentina.*
Reserpoid (Upjohn)	Reserpine	0.1 mg., 0.25 mg. tablets of a pure crystalline alkaloid of *Rauwolfia serpentina.*
Sandril (Lilly)	Reserpine	0.25 mg. scored tablet of a pure crystalline alkaloid of *Rauwolfia serpentina.*
Serpasil (Ciba)	Reserpine	0.25 mg., 0.1 mg. tablets of a pure crystalline alkaloid of *Rauwolfia serpentina.*
	RAUWOLFIA SERPENTINA IN COMBINATION WITH OTHER DRUGS	
Maxitate with Rauwolfia (Strasenburgh)	None	Tablets containing, mannitol hexanitrate 30 mg., rutin 30 mg., and whole-powdered *Rauwolfia serpentina* 30 mg.
Nitranitol R. S. (Merrell)	None	Tablets containing, mannitol hexanitrate 32 mg., and the alseroxylon fraction of *Rauwolfia serpentina* 0.5 mg.
Rauvera (Smith-Dorsey)	None	Tablets containing the alseroxylon fraction of *Rauwolfia serpentina* 1 mg., and alkavervir, 3 mg.
Rauwiloid + Hexamethonium (Riker)	None	Tablets containing the alseroxylon fraction of *Rauwolfia serpentina* 1 mg., and hexamethonium chloride dihydrate 250 mg. (hexamethonium ion 164 mg.)
Rauwiloid + Veriloid (Riker)	None	Tablets containing the alseroxylon fraction of *Rauwolfia serpentina* 1 mg., and alkavervir, 3 mg.
Serpasil-Apresoline Hydrochloride (Ciba)	None	Tablets containing reserpine 0.2 mg., and hydralazine hydrochloride 50 mg.

1. The alseroxylon fraction of *Rauwolfia serpentina* is a mixture of several alkaloids, and is standardized biologically.

toxic side effects, thiocyanate should never be used except when the blood thiocyanate levels (not to exceed 12 to 15 mg. per 100 cc.) can be checked at regular intervals.[3]

3. *Nitroprusside.* This drug has only recently been studied as an antihypertensive agent and is still under clinical trial. Page[30] reports that it has some of the properties of thiocyanate, but in addition appears to produce a more impressive hypotensive effect. The long-term effects of its administration remain to be evaluated. Page[30] believes that part of its hypotensive action depends on its conversion in the body to thiocyanate. Biochemical control of the blood thiocyanate level is also necessary when this drug is used.

4. *Pyrogens.* Soluble bacterial pyrogen (Piromen) has been employed in cases of advanced malignant hypertension which is not associated with impaired renal function.[30] The mode of action of the pyrogen is not well understood; however, it is thought to be associated with the fever which is induced (101 degrees to 103 degrees F.) following intravenous infusion of the bacterial polysaccaride. General peripheral vasodilation occurs with an especially marked increase in renal blood flow. The treatment is unpleasant and expensive, since it must be continued daily for several weeks. It has been advocated only when all other methods have failed to arrest the course of malignant hypertension. Page,[30] who is particularly familiar with this type of therapy, states, "this is a harsh treatment, but malignant hypertension is more than harsh—it is lethal".

Combined Drug Therapy

The use of various combinations of drugs in the treatment of hypertension has met with increasing popularity during the past two years. From the clinical studies reported, it appears likely that none of the presently available antihypertensive drugs is specific against the causes of essential hypertension. Hence, it appears justifiable that investigators should have attempted a combination of them with the assumption that a variety of antihypertensive agents would attack the disease at multiple points and thus would be more effective than a single drug. Reports of recent clinical studies appear to support this view, although it has been emphasized that a most careful evaluation of the individual drugs must be made before combinations are created.

Particular attention has been called to the combined use of hexamethonium and hydralazine,[48, 49] (Hyphex), in which the two drugs are administered orally as separate tablets. In short-term treatment with this combination, it has been reported that adequate reduction in blood pressure was obtained in patients who failed to respond to hexamethonium alone.[49] Long-term results remain to be established.

Recently, Wilkins[11, 45] has reported that *Rauwolfia serpentina* may be particularly suited for combined therapy with other antihypertensive agents such as the veratrum alkaloids and hydralazine. He found that, since these drugs can be used in relatively small doses when combined, a greater hypotensive action with fewer side effects results than can be produced by any one of them alone. Some of the proprietary combinations of antihypertensive agents with *Rauwolfia serpentina* are presented in Table III. Since these preparations have been made available only recently, it is not possible to evaluate their clinical efficacy at this time.

Summary

During the past few years an increasing number of drugs which are capable of reducing blood pressure in patients with hypertension have been made available. Therapeutic application of some of these compounds seems limited because of the appearance of untoward side effects and the development of tolerance with their continued use.

Clinical studies have revealed that of these newly developed drugs, the veratrum alkaloids, hexamethonium, and hydralazine, have been of particular value in the treatment of the more severe forms of hypertension. Their influence on the chronic and less severe cases will be shown only by prolonged clinical trial. It has been further shown that some of these potent drugs are potentially dangerous, and they must be used only when thoroughly familiar with their pharmacology, method of administration, and side effects.

The use of combinations of antihypertensive drugs, especially with the recently studied *Rauwolfia serpentina,* has gained increasing favor during the past few months. According to limited clinical reports, this type of therapy is more effective than when the drugs are used alone. One awaits with interest the results of long-term studies with such medical regimens.

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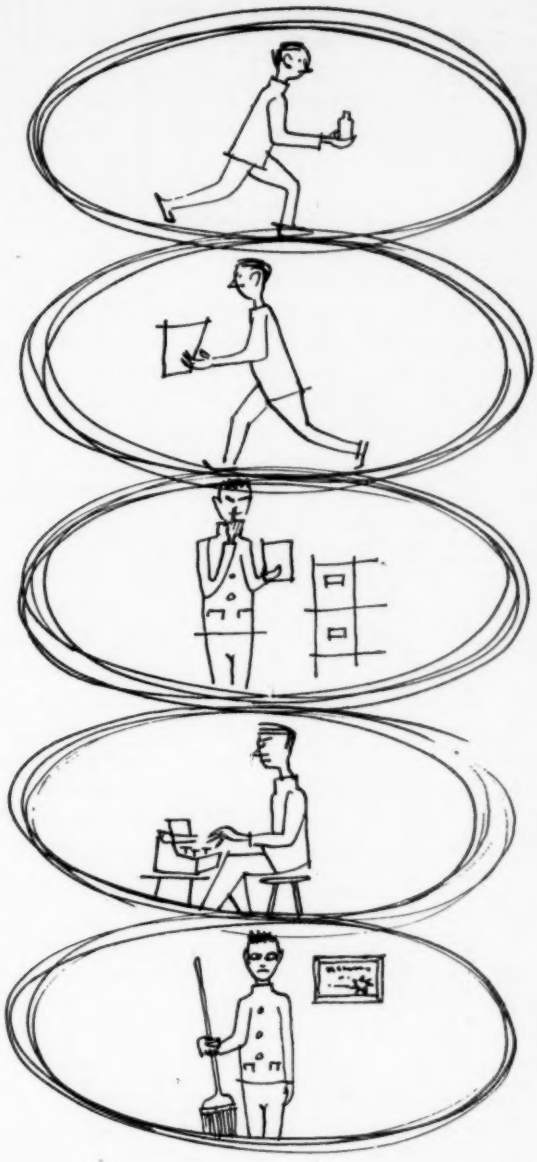
utilization of nonprofessional personnel in the hospital pharmacy



by WALTER M. FRAZIER

HOSPITAL PHARMACY SERVICE as described in the *Minimum Standard for Pharmacies in Hospitals* suggests the importance of effective use of nonprofessional personnel to assist the qualified pharmacist.

The working hours of the trained and experienced hospital pharmacist are filled with opportunities to develop and improve the services of the department. Without adequate help, the professional talents of the pharmacist could be dissipated while valuable time is spent on tasks which are suitable for a technician, a clerk, a secretary, or an errand boy or porter. There are dozens of nonprofessional tasks to be done in the hospital pharmacy every day. If there is no one else to do this work, the pharmacist will do it. The result is simple and it is wasteful. There is less time for practicing professional pharmacy.

In order to change this sort of unfortunate situation, if it exists, the pharmacist must first be genuinely interested in improving the department. Secondly, it may be necessary to justify the temporary initial cost of bringing about a change. A clear description of the need for assistance in the

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Presented at the Annual Institute on Hospital Pharmacy, University of Connecticut, Storrs, Connecticut, June 28—July 2, 1954.

work distribution chart — springfield city hospital, springfield, ohio

Activity	Tot. Hrs. Wk.	*Chief Pharmacist*	Hrs. Per Wk.	*Associate Pharmacist*	Hrs. Per Wk.	*Clerk*	Hrs Per Wk.	*Secretary*	Hrs. Per Wk.	*Technician*	Hrs. Per Wk.
Prescription Service	65	Prescription Dispensing: (a) In-Patient (b) Out-Patient (c) Personnel	30	Compound, prepare or dilute, all special prescriptions.	2	Pick-up and delivery service. Assist dispensing pharmacist. Obtain and package items called for.	6	Prepare all charges for drugs to individual patients. File prescriptions and maintain material cost and billing records.	24	Clean and process all bottles and utensils.	3
Ward Stock Service	87½	Supervise clerk. Check filled orders. Check barbiturates. Periodic check of drugs stocked at nursing stations.	½	Perform all bulk compounding and sterilizing procedures. Supervise technician in filling and labeling of stock containers. Train and supervise technician to assist with procedures and preparations.	30	Pick-up and delivery service. Fill orders for nursing stations. Fill and label ward stock containers. Rinse return empty containers.	25	Tabulate distribution of drugs. Price requisitions for material cost.	4	Bottle and label ward stock products from bulk compounded stock. Wash and process and sterilize returned empty bottles. Clean equipment and utensils. Assist Pharmacist in compounding.	28
Other Miscellaneous Dispensing	10	Dispense narcotics and antibiotics. Maintain narcotic inventory.	2½	Supervise technician in dilution of antibiotics.	2	Delivery service.	½	Billing and tabulation.	2	Unpack and remove seals. Dilute antibiotics.	3
Procurement and Inventory	20	Interview detailmen and salesmen. Compose purchase orders. Check requisitions typed by secretary.	2	Assume responsibility for procurement and inventory when Chief Pharmacist is not present. Responsible for stocks of basic drugs used in compounding.	6	Obtain and check orders received from purchasing department. Assist Pharmacists in stock control and storage of majority of inventory.	4	Type letters and requisitions. Enter receipt of merchandise on card file.	4	Obtain and check orders received from purchasing department. Advise secretary of receipts of shipments according to requisition. Mark material and place in stock.	4
Records and Reports	10½	Compose reports, memoranda to Executive Director and other departments. Review and check reports and records prepared by secretary.	2	Tabulate production records. Maintains control records of compounded products.	1	Assist secretary with simple tasks, and errands.	2½	Maintain barbiturate inventory. Prepare and type monthly financial reports.	4	Assist with all responsibilities of clerk, when clerk is absent.	1
Administrative and Management	14½	Establish policy and procedure of all transactions of department. Interview, indoctrinate, train and supervise all employees of the department.	4	Assist in training and supervision of employees. Assist in plans and projects of department. Direct department in absence of Chief Pharmacist	2½	Responsible for order and cleanliness of dispensing area. Supplies of soap, towels, and drug containers.	3	Personnel time records. Filing and typing. Answer and channel all telephone calls.	3	Responsible for order and cleanliness of compounding and storage areas.	2
Information Service & Education	3½	Lecture to Student Nurse Pharmacology class. Code literature for filing. Supervise answers to questions of physicians and nurses.	2	Assist Chief Pharmacist.	½			Typing. File coded literature.	1		
Inter- & Intra Professional Relations	3	Pharmacy and Therapeutics Committee secretarial duties. Edit Formulary and News Letter. Medical Intern discussion. Pharmacy Intern Program.	1					Typing.	2		
	213		44		44		41		44		41

evaluated during interview which frequently lead to rejection of the applicant

negative factors

1. Poor personal appearance.
2. Overbearing-overaggressive-conceited "superiority complex" - "know-it-all."
3. Inability to express himself clearly - poor voice, diction, grammar.
4. Lack of planning for career - no purposes and goals.
5. Lack of interest and enthusiasm - passive, indifferent.
6. Lack of confidence and poise - nervousness - ill-at-ease.
7. Failure to participate in activities.
8. Overemphasis on money - interested only in best dollar offer.
9. Poor scholastic record - just got by.
10. Unwilling to start at the bottom - expects too much too soon.
11. Makes excuses - evasiveness - hedges on unfavorable factors in record.
12. Lack of tact.
13. Lack of maturity.
14. Lack of courtesy - ill mannered.
15. Condemnation of past employers.
16. Lack of social understanding.
17. Marked dislike for school work.
18. Lack of vitality.
19. Fails to look interviewer in the eye.
20. Limp, fishy hand-shake.
21. Indecision.
22. Loafs during vacations - lakeside pleasures.
23. Unhappy married life.
24. Friction with parents.
25. Sloppy application blank.
26. Merely shopping around.
27. Wants job only for short time.
28. Little sense of humor
29. Lack of knowledge in field of specialization.
30. Parents make decisions for him.
31. No interest in company or in industry.
32. Emphasis on whom he knows.

PARTIAL LIST TAKEN FROM: SOCONY-VACUUM OIL CO. SURVEY

existing functions of the department plus a concise statement of additional services which could be added to the program, will provide the basis for a good claim that the pharmacy staff should be enlarged.

Recruiting An Employee

Before any person is employed, there should be a description of the job. There should also be a statement of the qualifications which the candidate is expected to have. With this information, the Personnel Department is able to more quickly refer the employee you want. Probably, however, many institutions do not have a Personnel Department, so the pharmacist will often be required to recruit his own employees. It is not an easy matter to find the ideal person for a position. By contacting the United States Employment Service in the community, commercial employment agencies, the high school superintendent, or the dean's office of a nearby college, several candidates may be found. By announcing to hospital people that there is a position open in the Pharmacy, it is possible that you will find a good employee. Several of the best employees I have had were recommended by members of the medical staff of our hospital. It takes a good deal of experience to be able to ascertain from a brief interview, whether or not the applicant possesses the qualities which the employer is seeking.

Of interest in connection with interviews with prospective employees is a compilation of fifty negative factors which frequently lead to rejection of the applicant. These factors, evaluated during the employment interview, have been compiled from reports from 153 companies. The compilation, available from the Socony-Vacuum Oil Company, 26 Broadway, New York, N. Y., appears in mimeo form along with a set of questions most frequently asked by college recruiters in interviewing college seniors. The report is made by Professor Frank Endicott, Northwestern University.

When the appointment of a new employee is made, the responsibility of the employer is intensified. From the first day, the period of indoctrination and assignment should properly establish the pattern of work, and also the attitude of the employee toward his job. A well planned work schedule and gradual methodical training, followed by adequate supervision, will develop an employee to the peak of usefulness and productivity. Soon the new employee can be taught to use his time to greater advantage and additional assignments and responsibilities may later qualify him for advancement.

It is possible to obtain the greatest assistance from people who are actually interested in the

Job Rating Form used by Antioch College to assist students.

ANTIOCH COLLEGE COOPERATIVE JOB RATING

(*Student's Name*) (*Academic Year*) (*Period*)

(*Employing Organization*) (*City*) (*State*)

EMPLOYER PLEASE FILL OUT

Exact dates of employment: From _____ to _____

Note: Since satisfactory work experience is a requirement for every Antioch student and his employers' ratings are an integral part of his college record, this rating is requested at the conclusion of each work period. More than one phrase in a section may apply to the student; please check all those which do, amending the wording if you wish. Compare the student to your regular employees doing similar work. Whenever possible, employers are urged to review the ratings and comments with the students.

Job Performance

PRODUCTIVITY, JUDGMENT, RESPONSIBILITY

How did the student approach his work?

- ____Accepted any assignment given him
- ____Worked well with little supervision
- ____Worked well under supervision
- ____Was not dependable
- ____Lacked skill; needs training
- ____Sees things that need to be done and goes ahead
- ____ _____

How did the student perform?

- ____Thorough in his work
- ____Low output; takes too much time
- ____Adequate production; about average
- ____Did more work than required
- ____Neat and careful in work habits
- ____Tended to overlook details
- ____Rarely or never absent
- ____Frequently late or absent
- ____Punctual; conscientious about putting in full time
- ____ _____

When the student was required to make decisions he

- ____Was not able to come to a decision
- ____Made mature decisions on his own
- ____Showed common sense but sometimes overlooked important factors
- ____Took too much time by laboring a point
- ____Had little or no opportunity to make decisions
- ____ _____

Other Personal Factors

ATTITUDE, ADJUSTMENT, AND COOPERATION

How does the student react toward his work?

- ____Is alert and interested
- ____Seems indifferent
- ____Has a negative attitude toward his work
- ____Daydreams; gives impression that he would rather be doing something else
- ____Learns easily and quickly
- ____Shows enthusiasm and initiative
- ____ _____

How does student accept criticism and suggestions?

- ____Openly resented being shown his mistakes
- ____Made efforts to improve as a result of criticism and suggestions
- ____Had no visible reaction to suggestions and criticism
- ____Welcomed criticism but showed no improvement from it
- ____Carried out suggestions and showed improvement
- ____ _____

How did the student fit into your organization?

- ____Felt at home and natural in setting
- ____Seemed somewhat reserved or shy
- ____Unduly aggressive and presumptuous
- ____Demanded too much attention
- ____Made no effort to get along with others
- ____Properly dressed and well groomed
- ____Worked tactfully and cooperatively with others
- ____ _____

What advice do you have for this student for improving his job performance and continuing his professional training? (*Please use reverse side of the sheet for extended comments*)

_____

_____

_____

If you had a suitable vacancy, would you hire this student as a permanent employee? Yes____ No____

Putting together the factors appraised above, what would be your over-all rating of this student?

Excellent Very Good Good Average Below Average Not Satisfactory

(Signed)_____ _____ (Signed)_____

(*Immediate Supervisor*) (*Contact Official*)

work. An intelligent part-time or temporary employee can often produce more work for your personnel dollar than the average permanent employee that your budget will enable you to hire.

Cooperative Programs

For the past six years we have participated in the Antioch College Cooperative Program, which is an alternating study and work arrangement. The student personnel department sends us students who are interested in the Allied Health Sciences. The objective of the Antioch Program is to aid the student in choosing the field which he will adopt for his life's work and also to give him the advantage of actual on-the-job experience in the general field associated with his studies. The Antioch Program is considered eminently successful and it has consistently developed career people who have become successful in their work sooner after graduation, as well as a high percentage of students who enter graduate schools.

There are about forty colleges or universities in the United States which have some type of cooperative work and study program.

Our arrangement with the college provides two students a year who work and attend school in alternate three-month periods. Upon completion of each work term the employer is requested to complete a job-rating form to furnish the student personnel department of the college with a source of material which will aid the school in developing the student. This type of form can be used by an employer in the study of every employee, to judge the progress of the staff or to consider the relative success of the personnel policy of the Department.

Good Personnel Relations—Maximum Efficiency

Commercial firms have long recognized the importance of good personnel relations and the value of maintaining a department which is devoted not only to the employment of people, but also to keeping them content in their work, and to the establishment of a policy and a program which will produce the maximum efficiency in work by the employees. Some of the elements involved in these human relations are briefly outlined in a card entitled "Job Relations," made available by Eli Lilly & Company.

Publications Available

I would like to call your attention to a booklet called, "So You Want A Better Job," by Paul W. Boynton, Supervisor of Employment, Socony-Vacuum Oil Co., Inc., 26 Broadway, New York 14, N. Y. (available free on request).

This may help to impart good philosophy to your employee and it may also give you some useful ideas for your own career.

A hospital pharmacy is no exception to fundamental principles of good business practices and good employee relations. Another helpful publication, entitled "Cutting Office Costs in Small Plants," is available from the U. S. Government Printing Office, Superintendent of Documents, Washington 25, D. C. (25 cents)

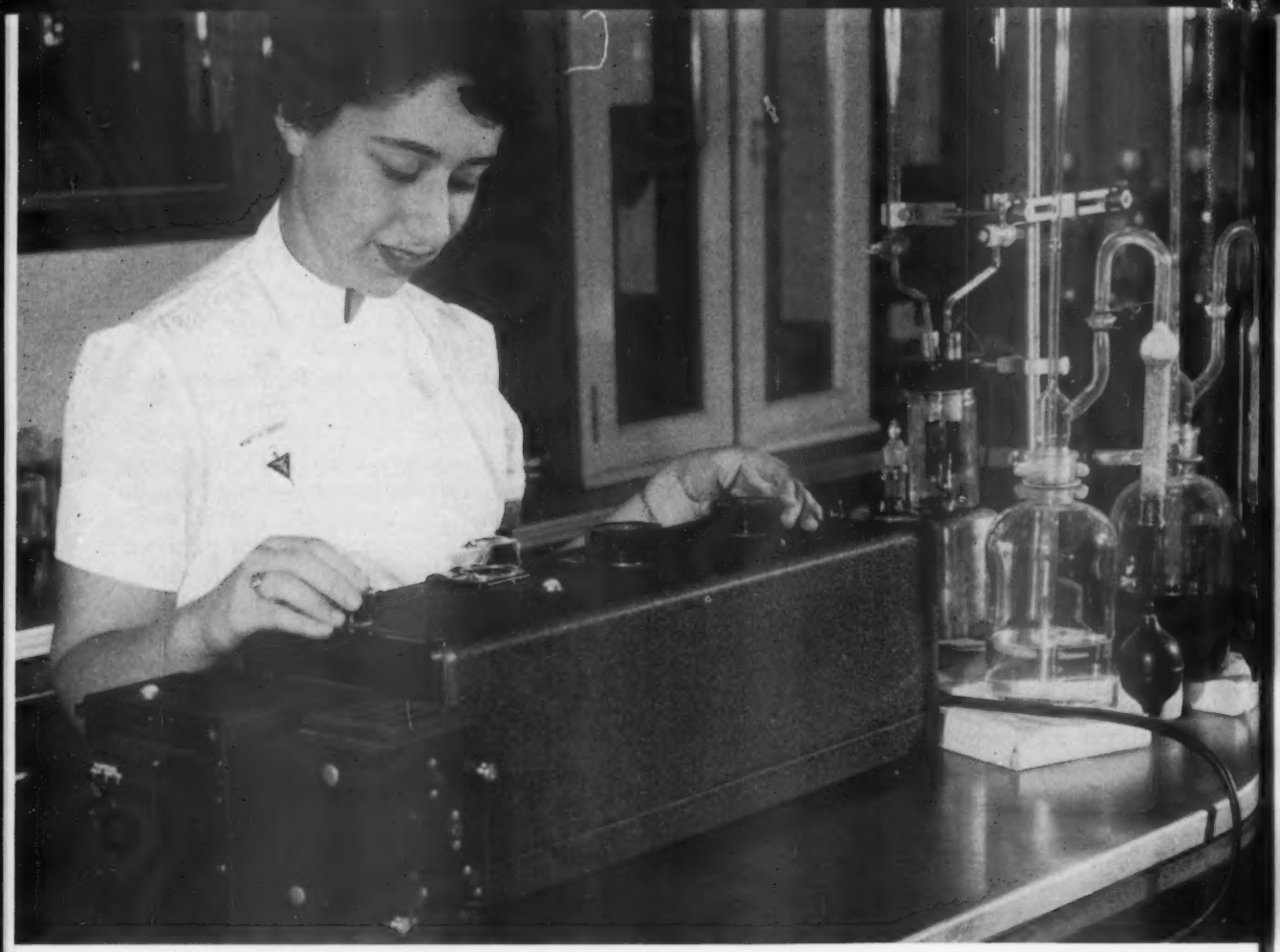
It is just good business practice to make sure that professional time is not wasted on nonprofessional duties. The pharmacist who is relieved of menial tasks, by having a secretary, a clerk, or a technician to help him, can, for example, prepare a hospital formulary and he can compound certain stock preparations which were previously not prepared in the department. The time used by the pharmacist to do such additional work can also be reduced by the assistance of the secretary or technician, so that the personnel cost of the product is minimized.

Work Distribution

The total pharmacy staff in a large hospital may consist of 10-25 employees. Personnel problems then, obviously become more pertinent, if not serious. The larger the staff, the greater is the need for organization, management control, planned indoctrination of employees, specific assignment and supervision.

In order to improve the utilization of personnel for greatest productivity, it is helpful for the director of the Department to study the assignments and routine work schedule of each employee. Then a work distribution chart may be drawn up to portray the total or composite program. This type of chart can be revealing to the director of the department and it will automatically suggest changes which might prove very valuable. It can be used to show relations of one employee's work to that of another. It shows the individual and total time spent on each type of work. It can show a cost ratio in employee time for different types of work. It helps to be sure that each job is specifically assigned to some one. If the job depends on two or more people you realize it. A work distribution chart prepared by the managing pharmacist would probably be very enlightening to the hospital administrator and to the personnel director of the hospital.

A copy of a Work Distribution Chart which was developed for the Springfield City Hospital appears on page 258. If you are interested in studying your personnel policy, I hope that these thoughts will suggest some ideas which you can apply to your own problems related to personnel utilization and work distribution.



Miss Thelma Lezberg of the Pharmacy Staff at Massachusetts General Hospital assays a product using the spectrophotometer.

Practical pharmaceutical control

by JOHN T. MURPHY

PHARMACEUTICAL MANUFACTURING is the preparation of medicaments for future rather than immediate use. Hence, sufficient time is available for evaluation of the correctness of the finished product. That there should be such quality control is hardly debatable. Commercial houses, by law, must maintain such controls. Acceptance of a pharmaceutical by the Council on Pharmacy and Chemistry of the American Medical Association is dependent, in part, on the use of controls. The retail pharmacist is legally responsible for any omissions or errors that he may make in preparing pharmaceutical products.

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Presented at the Institute on Hospital Pharmacy, Storrs, Connecticut, June 1954.

To my knowledge there is no expressed legal requirements that hospitals insure the quality and safety of pharmaceuticals that they manufacture. There is, however, a moral requirement that they do so. It is my firm conviction after many years of hospital pharmaceutical manufacturing experience with the use of adequate controls, that no one, hospitals included, should be permitted to manufacture any preparations intended for parenteral, enteral, topical, and inhalation use without some method of insuring the quality and safety of the finished products.

In the category of parenteral preparations, large-volume intravenous solutions of dextrose and sodium chloride should be included. It strikes me as ridiculous that in most discussions as to the pros and cons of hospital manufacture of these solutions that the prime requirement is freedom from pyrogens. Certainly, that these solutions be non-pyrogenic is desirable. But less so, I think, than the absolute assurance that they contain the labeled substances in the indicated amounts, and not some other substances. Or, as can happen with some methods of preparation, the "solutions" may contain only distilled water.

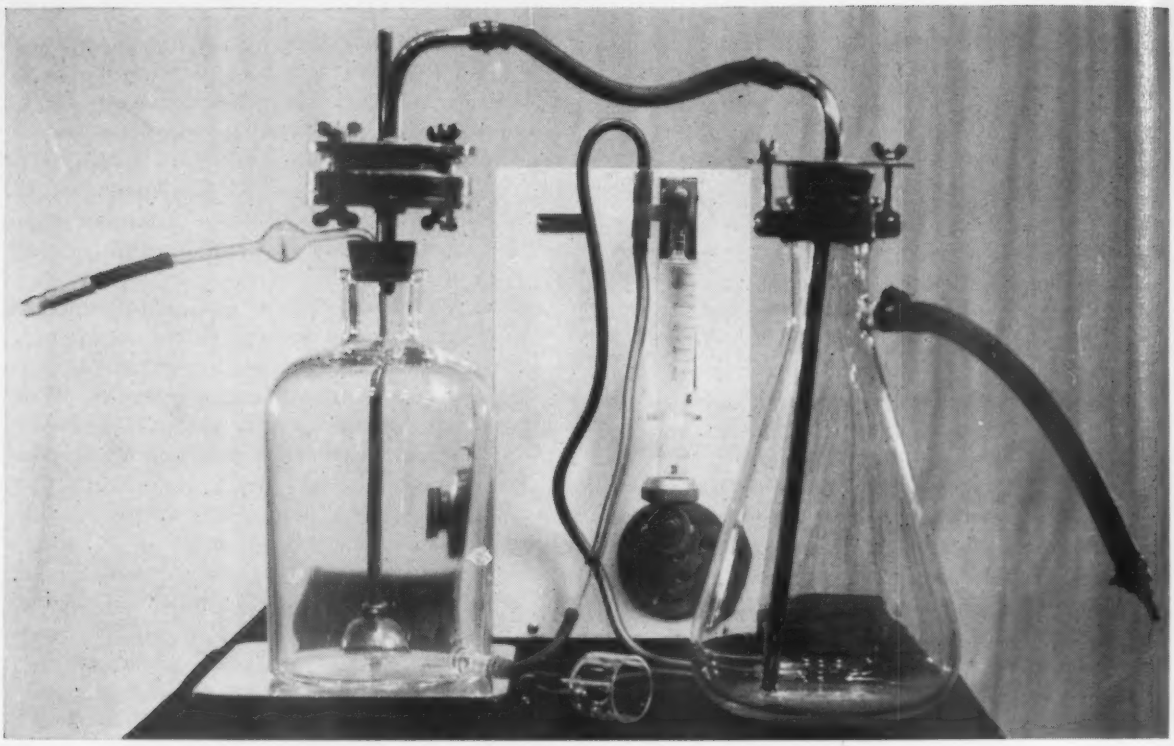
Quality control of pharmaceutical manufacturing involves two basic considerations. The first concerns the actual processing of the preparations. Adequate facilities should be provided for making the preparations. This should include precautions to insure identity and purity of basic materials, and provision for proper storage of these materials to maintain identity and purity. Materials adversely affected by atmospheric conditions should be stored in air-tight and moisture-impervious containers, and purchased in sizes commensurate with frequency of use. Also, facilities should be provided to insure sanitary and accurate preparation of the desired products. It is indeed an anomaly that a hospital administrator, who with little hesitation will provide accounting devices that run into thousands of dollars, balks at providing the pharmacist the instruments essential to fulfilling his role in providing adequate patient care.

Essentials For Quality Control

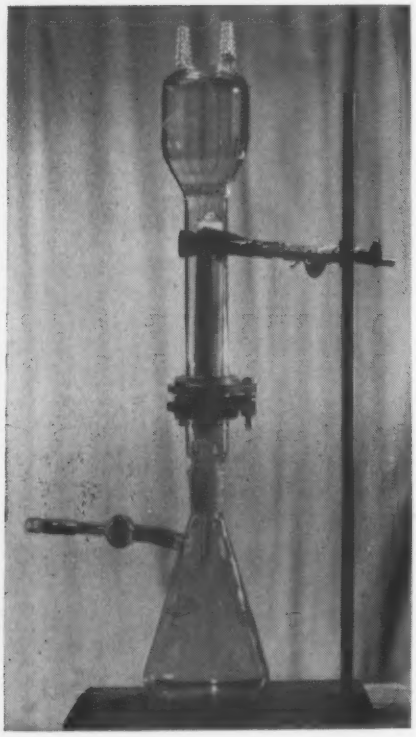
A manufacturing-record card should be available for all preparations made. This card should include space for the formula, and provide for a system of checking each ingredient, and its weight or measure. It should indicate who made the preparation, who filled the containers, and who labeled them. It should provide space for data as to the total number of finished products obtained from a batch, which should be checked with the theoretical yield. The record card should provide for data on sterilization and sterility control when a sterile product is required. Space should be allowed for analytical data, such as *p*H, identity tests, and assay. The responsibility for correct labeling should rest with the pharmacist who makes the preparation. The product should not be released for dispensing until the card is signed by the person who is responsible for the analytical procedures. The card should have a number which should appear on every label of the finished product.

The second consideration in quality control of pharmaceutical manufacturing is the requirement that facilities should be provided to establish the correctness of the manufactured product. These facilities should be sufficient to check proper hydrogen-ion concentration when it is important. Also, equipment should be provided to assay most of the preparations manufactured. Assays of preparations requiring very expensive equipment such as flame-photometers, spectrophotometers, and so on, should be carried out in the hospital's clinical laboratories, if available. If not they should be sent to a commercial analytical laboratory. Bacteriological control may be performed by the hospital bacteriologist.

Tablet disintegration time is tested by a member of the Pharmacy Staff at the Massachusetts General Hospital.



ABOVE: *Ertel bacterial filtration assembly with attachment for aseptic filling.* BELOW: *A glass bacterial filtration assembly.*



Discrepancies Avoided By Controls

That these analytical control procedures, even under somewhat ideal conditions of manufacturing, are imperative is emphasized by reviewing only a few instances of significant discrepancies that occurred in the manufacture of certain preparations in our pharmacy.

1. *It was decided to manufacture capsules containing a mixture of a salt of a sympathomimetic amine, a free barbiturate, and starch. Analysis of the mixture preparatory to encapsulating indicated that the barbiturate was within tolerances. The amine, however, was about 60 percent of its required potency, notwithstanding that the weights of the ingredients were carefully checked. A quest for the answer as to what happened to the amine during the blending process revealed that the starch had a pH slightly on the alkaline side, and this together with a water content within U.S.P. limits resulted in some separation of the free base which, because of appreciable vapor pressure, passed off into the atmosphere. The addition of a small amount of citric acid to the formula solved our problem.*

2. *An ophthalmic solution of scopolamine hydrobromide assayed prior to sterilization was found to be about 15-percent more potent than desired. Determination of the water content of the salt with the Karl Fischer method indicated an almost completely anhydrous salt, instead of the hydrated U.S.P. salt which contains in excess of 12 percent of water.*

3. *A 1 percent solution of procaine hydrochloride was prepared, checked for pH, and assayed before sterilization and found to be satisfactory. Assayed after sterilization the solution was found to be about 65 percent of the required potency. Investigation revealed that it had been autoclaved for too long a period of time.*

4. *A concentrated intravenous electrolyte solution to be used in a metabolic study was prepared with all weights and measures presumably checked. Yet, analysis before releasing for dispensing showed one of the electrolytes to be 50 percent of the required amount.*

Need For Manufacturing

Having established the need of certain facilities for the proper manufacture and quality control of pharmaceutical preparations, let us explore the need for manufacturing in the hospital pharmacy. There are two premises that have a bearing on the decision to manufacture or not to manufacture. The first is based on absolute necessity. The second is predicated only on economic considerations. Economic factors are, of course, important, but not vital to adequate patient care. Hence let us discuss the first consideration.

Pharmaceutical houses for many reasons do not provide all of the preparations needed for complete therapeutic care. It is not necessary to burden you with a review of all the items that may be requested by the physician which are not commercially available. You have been, I am sure, confronted with many requests for pharmaceutical service which, due to inadequate facilities, you were unable to provide. The important ones generally fall within the category of injectibles or other sterile products such as collyria, irrigating solutions, and certain topical preparations. Inability to provide such preparations because of insufficient pharmacy equipment is an indictment of the hospital for not fulfilling its obligation to the patient of providing the best in care.

Suggested Equipment

There is no validity to the argument that a small hospital cannot afford the expense incidental to manufacturing with proper control those preparations essential to adequate patient care but commercially unavailable. The total expenditure for this equipment will not exceed a $3,500 investment.

1. Hood for filling injectibles, collyria, and other sterile products. This is a piece of equipment which may be used instead of an air-conditioned room. It consists of a unit which electrically precipitates dust and bacteria of the air, and then pumps the purified air across ultraviolet sterilizer tubes, shielded from the operator, into the filling hood under a pressure greater than that of atmosphere. This feature prevents the entrance of contaminated air during the filling operation. After washing the interior of the hood with a solution of hexachlorophene in isopropanol, repeated tests with sterile agar plates located in several areas of the hood during actual filling operations indicate that it provides a practically sterile working area.
2. Water still.
3. Autoclave.
4. Analytical balance and weights.
5. Automatic pipetting machine.
6. Hot air oven.
7. *p*H Meter.
8. Magnetic stirrer.
9. Seitz or Ertel bacterial filter.
10. Morton glass bacterial filter or Ver Tis glass bacterial filter.
11. Three fritted glass filter assembles consisting of 150 ml. fritted glass funnels, air filter, and aspirating bottle.
12. Sealing device or machine for aluminum seals.
13. Burettes, pipettes, volumetric flasks, separatory funnels, beakers, etc.

The hospital pharmacist must engage in the manufacture of preparations not easily obtainable but vital to patient care. However, the decision to manufacture preparations available from first-line pharmaceutical houses is dictated only by economic considerations. The small hospital can rarely justify the manufacture of preparations equal in quality to those supplied by better pharmaceutical houses.

Important Considerations

The decision of the larger hospital to engage in manufacturing of products equal in quality to those obtainable from first-line pharmaceutical houses is dependent upon many considerations, of which, the following are important:

1. A formulary system that precludes the duplication of any particular brand of a preparation.
2. A large outpatient department with pharmacy facilities.
3. Careful evaluation of all factors of manufacturing cost, such as space, heat, light, and labor. The cost of expensive equipment, amortized over a period of years consistent with its use, should be assessed as a factor of cost.
4. The savings to be effected should be substantial and not nominal.
5. The cost of analytical control in terms of personnel and investment in analytical equipment should be included as a factor of manufacturing cost.

Improvement in pharmacy service through

INSPECTION

by J. HAROLD JONES

NOT ONLY IS HOSPITAL PHARMACY recognized as one of the most important fields in pharmacy, but it has become a vital factor in the successful operation of a hospital. However, as many of you may know, hospital pharmacy has not always occupied this position. Until recent years, hospital pharmacy, in Indiana at least, was left pretty much to its own devices. Comparatively few hospitals had the services of a pharmacist. Those that did have such services merely tolerated them, convinced they could just as well do without them, since they felt anyone could dispense drugs as well as a pharmacist.

Since enactment of the Hospital Licensing Act by the General Assembly of the State of Indiana in 1945, hospital pharmacy in Indiana has undergone many changes and is now recognized as a necessary and much needed service by hospital authorities. Under the provisions of the Hospital Licensing Act, the State Board of Health is empowered to license and regulate hospitals.

Such licensing and regulation is accomplished through a council consisting of eight members appointed by the Governor. The Hospital Licensing Council is composed of one member of the medical profession having an unlimited license to practice medicine in Indiana, one member who is a registered nurse, four members actively engaged in hospital administration, one member from the State Department of Public Welfare, and one member from the State Board of Health.

The Division of Hospital and Institutional Services of the State Board of Health is the agency charged with the major responsibility for the administration of this Act. Under the provisions of the Hospital Licensing Act, the Hospital Licensing Council and the State Board of Health promulgated General Regulations for Hospitals. These regulations set forth the minimum requirements for licensure. These General Regulations became effective May 3, 1946. I might mention here that Indiana was among the first three states to enact legislation licensing hospitals. I believe at the present time forty states have a hospital licensing program. These General Regulations for Hospitals include three regulations that pertain to pharmacy; namely, regulation HHL 14, paragraph (h), regulation HHL 31, and regulation HHL 34.

Harold Jones (right) is presented Honorary Membership in the Indiana Chapter of the ASHP. Shown also in the photo is Allen V. R. Beck, president of the national organization.

J. HAROLD JONES is Pharmaceutical Inspector Division of Food and Drugs, Indiana State Board of Health, Indianapolis, Ind.

Presented at the Decennial Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Philadelphia, Pa., August 21 and 22, 1952.

Design, Equipment and Maintenance

Regulation HHL 14 reads, *"Design, Equipment and Maintenance of the Physical Plant: No hospital shall be recommended for license by the Hospital Council, nor shall a license be approved by the State Board of Health unless the following requirements have been fulfilled:"* and paragraph (h) of this regulation reads, *"There shall be space and facilities for the proper storage of all drugs, supplies and equipment."* At the time these regulations became effective very few hospitals had full compliance with this regulation. Adequate space and facilities were not available for the proper storage of drugs. We found drugs stored in such places as the attic, hallways, utility rooms, diet kitchens, dining rooms, garages, and in one instance, in the living quarters of the pharmacist. Usually these areas were poorly lighted, improperly ventilated and readily accessible to unauthorized personnel. Very few of these storage areas had ample shelving or refrigeration facilities. At the present time, most of the hospitals have corrected these conditions. Separate storage areas for the storage of drugs only are available, and are properly lighted, well-ventilated, equipped with ample shelving, and have adequate refrigeration facilities.

Although compliance with this regulation is no longer a major problem, the inspection of these areas and facilities is still an important part of our inspections.

Storage

Regulation HHL 31 reads, *"Storage of Medicines: (a) All medicines, poisons and stimulants kept in a nursing service division shall be plainly labeled and stored in a specially designated medicine cabinet, closet or storeroom, and made accessible only to authorized personnel. The cabinet for drugs shall be well illuminated. (b) Narcotics must be securely locked at all times and accessible only to persons in charge. (c) All medications shall be discarded when orders have been discontinued or patient has been dismissed."*

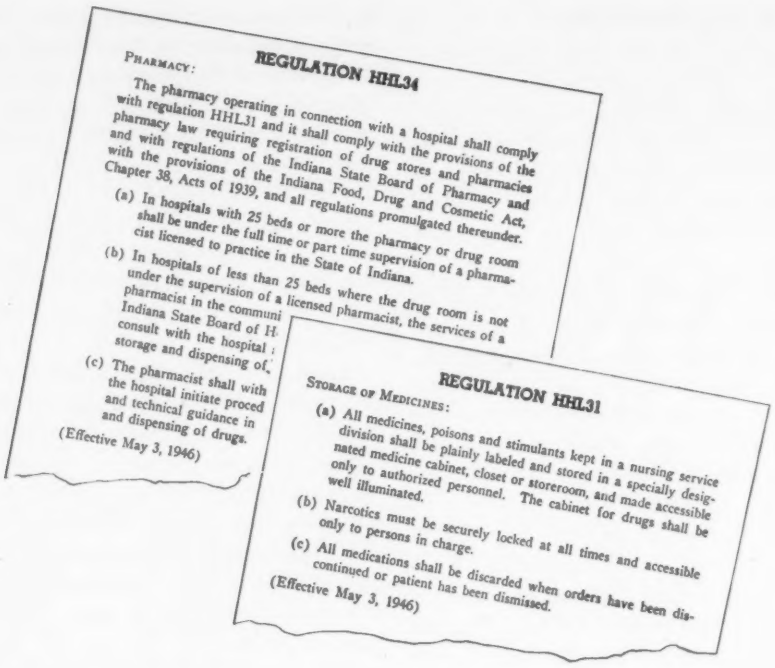
At the time this regulation became effective, many drugs in nursing divisions were found to be improperly labeled and stored in objectionable locations. Improper labeling was found to be more prevalent in hospitals where the services of a pharmacist were not available. In many instances, the labeling was soiled, making proper identification questionable; or the labeling did not contain sufficient information to assure proper identification; and, frequently, two different labels were found on the same container, raising the question as to which label correctly identified the product. Although drugs in nursing service divisions were oftentimes stored in well-lighted medicine cabinets or other suitable places, in other instances drugs were stored in linen closets, utility rooms, and diet kitchens. For obvious reasons these areas were not suitable for storing drugs. Then too, they were readily accessible to unauthorized personnel who could easily make away with most any drug he might choose.

Compliance with paragraph (b) of this regulation, which has to do with narcotics, has been excellent at all times. This fact proves that hospitals benefit from standards, inspections, and consultations.

Paragraph (c) reads, *"All medications shall be discarded when orders have been discontinued or patient has been dismissed."* As written, this could mean that all medicines in the nursing service division from which a single dose of medicine was administered, would have to be destroyed whenever orders were discontinued or the patient dismissed. In order to clarify this paragraph, it should be rewritten to read, "All individual medications shall be returned to the pharmacy for proper disposition when orders have been discontinued or patient has been dismissed." The purpose of this part of the regulation is to prevent an accumulation of partially used individual medications in the medicine cabinets of the nursing service divisions. Since most hospitals return all unused individual medication to the pharmacy or drug room for proper disposition, this is no longer a major problem. Compliance with all of the requirements of regulation HHL 31 has steadily improved; however, inspection of these facilities is still important.

Provision for Pharmacy

Regulation HHL 34 reads, *"Pharmacy: The pharmacy operating in connection with a hospital shall comply with regulation HHL 31 and it shall comply with the provisions of the pharmacy law requiring registration of drug stores and pharmacies and with regulations of the Indiana State Board of Pharmacy and with the provisions of the Indiana Food, Drug and Cosmetic Act, Chapter 38, Acts of 1939, and all regulations promulgated thereunder. (a) In hospitals with 25 beds or more the pharmacy or drug room shall be under the full time or part time supervision of a pharmacist licensed to practice in the State of Indiana. (b) In hospitals of less than 25 beds where the drug room is not under the supervision of a licensed pharmacist, the services of a pharmacist in the community or a pharmacist inspector from the Indiana State Board of Health, shall be obtained periodically to consult with the hospital administrator relative to the labeling, storage and dispensing of drugs. (c) The pharmacist shall with the approval of the administration of the hospital ini-*



REGULATION HHL34

PHARMACY:

The pharmacy operating in connection with a hospital shall comply with regulation HHL31 and it shall comply with the provisions of the pharmacy law requiring registration of drug stores and pharmacies and with regulations of the Indiana State Board of Pharmacy and with the provisions of the Indiana Food, Drug and Cosmetic Act, Chapter 38, Acts of 1939, and all regulations promulgated thereunder.

(a) In hospitals with 25 beds or more the pharmacy or drug room shall be under the full time or part time supervision of a pharmacist licensed to practice in the State of Indiana.

(b) In hospitals of less than 25 beds where the drug room is not under the supervision of a licensed pharmacist, the services of a pharmacist in the communi
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and technical guidance in
and dispensing of drugs.

(Effective May 3, 1946)

REGULATION HHL31

STORAGE OF MEDICINES:

(a) All medicines, poisons and stimulants kept in a nursing service division shall be plainly labeled and stored in a specially designated medicine cabinet, closet or storeroom, and made accessible only to authorized personnel. The cabinet for drugs shall be well illuminated.

(b) Narcotics must be securely locked at all times and accessible only to persons in charge.

(c) All medications shall be discarded when orders have been discontinued or patient has been dismissed.

(Effective May 3, 1946)

tiate procedures to provide for the administrative and technical guidance in all matters pertaining to the handling and dispensing of drugs."

This regulation, I believe, is the most important of the three regulations pertaining to pharmacy as set forth in the General Regulations for Hospitals. In 1946, when this regulation became effective, there were one hundred twenty-two hospitals subject to licensure in Indiana. This figure does not include mental institutions, sanitoriums, or federally owned hospitals. None of the one hundred twenty-two hospitals was in compliance with the regulation of the Indiana Board of Pharmacy requiring registration of drugstores and pharmacies. This noncompliance was easily corrected and is no longer a problem.

Of the one hundred twenty-two hospitals subject to licensure, only twenty-two had the services of a pharmacist. Most of these twenty-two hospitals were located in the larger cities and each had the full-time services of a pharmacist. The remaining one hundred hospitals did not have the services of a pharmacist in any capacity whatsoever and therefore were not in compliance with the requirements of regulation HHL 34. Noncompliance with this regulation was a major problem in 1946, and, although great improvement has been shown, it still gives us a great deal of concern.

The Division of Hospital and Institutional Services together with the Division of Food and Drugs has devoted a great deal of time in an effort to improve this situation, and that it has improved is borne out by an analysis of the 1952 survey of all hospitals subject to licensure. This analysis reveals there are one hundred twenty-nine licensed hospitals in Indiana. Of this total, forty hospitals have the full-time services of one or more pharmacists, thirty-two have the services of a pharmacist on a part-time basis, and fifty-seven do not have the services of a pharmacist in any capacity. Several hospitals in this latter group are planning to secure the services of a pharmacist either on a part-time or full-time basis in the near future, depending on the individual needs of the hospital.

As previously mentioned, regulation HHL 34, among other things, states that the pharmacy operating in connection with a hospital shall comply with the provisions of the Indiana Food, Drug, and Cosmetic Act, Chapter 38, Acts of 1939, and all regulations promulgated thereunder. Since this Act has to do with the manufacture, repackaging, processing, methods of control, labeling, adulteration, storage, and dispensing of drugs, we believe compliance with the requirements of this Act is essential to the hospital, nursing, and medical staffs, and is important to the welfare of the patient.

Inspection

I might mention here that the Indiana Food, Drug and Cosmetic Act plays an important part in hospital pharmacy inspection. The Indiana act is uniform in its provision with the Federal act, and in addition, authorizes the seizure and destruction of violative drugs. This gives the pharma-

ceutical inspector legal authority to embargo and, if necessary, institute legal proceedings for the destruction of outdated biologicals, drugs stored improperly, or drugs improperly labeled. Without such legal authority the inspector may not be able to cause the removal of outdated, unlabeled, or otherwise dangerous drugs unless the hospital authority agreed.

It has not been necessary for us to use this legal procedure against any hospital in Indiana since we have received full cooperation on the part of hospital authorities in such matters. In 1946, none of the one hundred twenty-two hospitals subject to the Hospital Licensing Act was in full compliance with the provisions of the Indiana Food, Drug and Cosmetic Act.

For the past six years we have endeavored to secure full compliance on the part of every hospital subject to licensure through an educational program, rather than one of an enforcement nature. In our educational program, we have constantly stressed the need for: (1) qualified personnel; (2) proper labeling; (3) adequate storage facilities for the proper storage of drugs; (4) better facilities and up-to-date equipment for manufacturing purposes; and (5) a rigid stock control system that will assure positive identification of any drug from the time it is received by the hospital until it is administered to the patient.

Compliance with the requirements of the food and drug act on the part of every hospital has steadily improved during the past six years. This has been accomplished through periodic inspections and a well-planned educational program. To assure a still greater compliance with the requirements of the food and drug act, our educational program will be continued, and inspections will be made more frequently, supplemented by the collection of investigational samples for analysis and a review of labeling. Inspection of the facilities and procedures of central supply will be included in our work plans for next year, as there is a growing conviction in our minds that central supply should be under the direct supervision of the pharmacy.

I would like to recommend to this association that it plan a seminar on hospital pharmacy to be held in Indiana in the near future. I would like to see a major part of the seminar devoted to the problems of the smaller hospitals, particularly those hospitals having the services of a local retail pharmacist on a part-time basis. This part-time service is furnished in some instances on a daily basis for a period of a few hours, or sometimes is rendered on a weekly or semiweekly basis. Local retail pharmacists are steadily becoming more interested in furnishing this service. At the same time, they realize that hospital pharmacy presents a different problem than that of a retail pharmacy. As a result, we receive many requests from retail pharmacists for assistance in setting up procedures that will enable them to furnish competent pharmaceutical service to their local hospitals. We are glad to furnish this assistance to them and also suggest that it would be to their advantage to become members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and to receive its publication and attend meetings when possible. Recently, several retail pharmacists in Indiana have made application for membership in this organization. There is also a great need for these men to get together for a discussion of their problems. Because of a lack of qualified personnel, we are unable to offer such a seminar to local retail pharmacists in Indiana.

Some day, inspection of the pharmaceutical services and facilities of every hospital will disclose the following picture. We will find that the pharmacy is in a centrally located room, adequate in size, well-lighted, properly ventilated, and maintained in an exceptionally clean manner. It will be furnished with modern fixtures and equipment. All pharmaceutical supplies and equipment will be arranged in a neat and orderly manner. Most important of all, we will find a qualified hospital pharmacist in charge.

The storeroom will be easily accessible to the pharmacy. It too will be adequate in size, well-lighted, properly ventilated, clean, and adequately equipped for the proper storage of drugs. An adequate system of stock control will be in use which will assure positive identification of each drug from the time it is received by the hospital until it is administered to the patient.

Manufacturing will be conducted in a separate area suitable for such operations. It also will meet the physical requirements necessary for manufacturing drugs. Adequate control methods will be used to assure a product of proper potency and identity. Most important of all, we will find a qualified hospital pharmacist in charge of this operation.

We will find that the pharmacist is a valued member of the therapeutic committee. He will be a member of the teaching staff for the training of student nurses. He will be responsible for the purchase, storage, and dispensing of all drugs, surgical supplies, and equipment both in the pharmacy and central supply.

When this picture becomes a reality, which it will, I am sure you will agree that frequent inspection by qualified personnel has played an important part in the improvement of hospital pharmacy.

ABOVE: *Group photograph of hospital pharmacist attending Institute in Storrs, Conn.* CENTER: *View of the meeting room and students.* BELOW: *Speakers' table at the final dinner. Shown left to right are Dr. George Archambault, Mrs. Hal Hewitt, Dean Hal Hewitt, Dr. Don E. Francke, Mr. Allen Beck, Dr. Charles Letourneau, Mrs. Don Skauen, and Dr. Don Skauen.*

1954 INSTITUTES
ON HOSPITAL PHARMACY

STORRS
CONNECTICUT

TENTH INSTITUTE

Sponsored by

American Hospital Association
American Pharmaceutical Association
American Society of Hospital Pharmacists

A RECORD ATTENDANCE of 163 registrants representing 34 states, Canada, and the Canal Zone, participated in the 1954 Institute which was held on the campus of the University of Connecticut, June 28—July 2. Those attending came from as far West as Utah and Colorado and Louisiana and Texas were represented from the South. A greater number of those attending represented general hospitals with eight from nervous and mental institutions, three from tuberculosis hospitals, and three from special hospitals. Of those registered, 11 were from hospitals of over 1000 beds; 31 from institutions having 500-1000 beds; 10 from hospitals in the 401-500 bed category; 27 in the 300-400 bed category; 38 in the 201-300 bed category; 26 in hospitals of 101-200 beds; and four from institutions under 100 beds.

The entire week was devoted to a concentrated program designed to bring hospital pharmacists up-to-date on current practices and therapeutic trends. Perhaps most significant in the entire program was the interest shown in the many facets of hospital pharmacy practice. During the week, there were repeated comments regarding the opportunities for expanding pharmaceutical services in the interest of better patient care. In the opening talk on "The Administrator's Viewpoint on the Pharmacy," by Dr. Albert W. Snoke, Director of Grace-New Haven Community Hospital and Professor of Public Health at Yale University, New Haven, Conn., emphasis was placed on service to the patient. Secondary to this, Dr. Snoke emphasized the need for economy and efficiency in carrying out the pharmacist's role in the hospital. He indicated that what is good for the patient is good for the hospital and, in turn, good for the pharmacist. He further spoke on the relationship of the Pharmacy Department to the Administration indicating that the pharmacist should be prepared to give his administrator only a general over-all idea as to what is going on in the Pharmacy Department, indicating that the administrator could not be concerned with details.

In talks by Dr. Clifton K. Himmelsbach of the Bureau of Medical Services of the U. S. Public Health Service, and by Mr. Grover C. Bowles, Associate Administrator of the Memorial Hospital Association of Kentucky, Inc., Washington, D. C., the role of the pharmacist on the Pharmacy Committee and opportunities for increasing the pharmaceutical services were discussed. Dr. Himmelsbach reviewed the historical background in the establishment of the Pharmacy Committee, citing in detail the responsibilities of the individual members. Mr. Bowles pointed out that opportunities are often disguised as hard work and are therefore

sometimes overlooked by pharmacists. He cited specific ways in which the hospital pharmacist has many opportunities for expanding his services to the patient as well as to the institution.

Administration and Policies

During the entire meeting, considerable attention was given to policies developed by the administration and by the Pharmacy Department for carrying out procedures within the hospital. In a panel discussion on "Pharmacy Administration and Policies," an attempt was made to clearly define administrative policies and departmental policies with experts on the panel giving examples of each. There was also some discussion concerning the need for written policies versus unwritten policies.

A number of hospital pharmacists participated in the program during the week, covering various phases of hospital pharmacy practice and, in many cases, literature was made available to supplement the lectures.

One of the highlights during the week was the Workship which was held on Tuesday. Those attending the Institute were divided into ten groups of approximately fifteen each. With a leader, the group was given an opportunity to discuss timely subjects and to formulate some type of conclusions regarding current practices relating to the assigned subject. The results of the Workshop were put before the leaders of the groups in the form of a panel discussion with Dr. Robert R. Cadmus, representing the American Hospital Association, as moderator. Subjects given particular attention by the group during the panel included educational trends in pharmacy and the need for specialized training in hospital pharmacy; pricing policies; pharmacy internships; and professional relations.

Manufacturing and Equipment

Manufacturing, also referred to as "bulk compounding" and "volume compounding," was given consideration during the week with papers presented on physical planning for compounding, equipment for manufacturing, prepackaging equipment, practical water supply, controls, and formulas for various types of compounding in the hospital pharmacy. Supplementing this was a "Gadget Show" which might also be referred to as an equipment show. In charge were Mr. Allen Beck, Chief Pharmacist at Indiana University Medical Center, and Mr. Robert C. Bogash, Chief Pharmacist of the Lenox Hill Hospital, New York City. Equipment of particular interest to hospital pharmacists was on display at the Pharmacy School at the University of Connecticut.

Therapeutics

In rounding out the program, outstanding clinicians in the various medical fields, were present for the Thursday program. Among the speakers were Dr. Stevens J. Martin who covered "Agents Used for Anesthesiology," Dr. Richard A. Neubauer whose subject was "Clinical Use of Electrolytes," and Dr. Frederick L. Nichols who spoke on "Hormones and Their Effective Use Today." Dr. Donald A. Clarke, former hospital pharmacist at the New York Hospital in New York City, presented a talk on "The Pharmacology of Chemotherapeutic Agents Employed in the Management of Leukemia." Other speakers covered radioactive isotopes, antibiotics, and the newer drugs. Of particular interest to hospital pharmacists was the review of current investigational drugs which was presented by Dr. William E. Hassan, Chief Pharmacist of the Peter Bent Brigham Hospital in Boston. A talk on "Toxicological Ingredients of Common Household Products," by Mr. Bernard E. Conley, Secretary of the Committee on Pesticides of the American Medical Association, pointed out the need for further study in this field and the task in developing any list of antidotes for common household products since there are innumerable combinations available.

Local Participation

Special recognition should be given the representatives of the University of Connecticut, Dean Howard Hewitt and Dr. Donald Skauen of the School of Pharmacy, and the Connecticut Society of Hospital Pharmacists headed by Mr. Dave Burack. The detailed arrangements for the meetings, the efforts in arranging for transportation, and the social on Monday night, all contributed to the success of the Institute.

At the final dinner on Friday night, certificates were presented to the 163 registrants by Dean Hewitt and Dr. Charles Letourneau of the American Hospital Association.

The enthusiasm for this Tenth Institute on Hospital Pharmacy was apparent throughout the week. In some few cases, the program was too full and it is hoped that future Institute Planning Committees will be cognizant of the need for informal discussions as well as planned lectures.

Representatives of the sponsoring organizations, including the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, in addition to the A.H.A. and the local group, also took an active part in arranging the program. Dr. Robert P. Fischelis, Secretary of the A. Ph. A. was present during the first session on Monday and brought greetings from the parent organization.

ATLANTIC CITY

SIXTH INSTITUTE

Sponsored by

Catholic Hospital Association

American Pharmaceutical Association

American Society of Hospital Pharmacists

THE PROGRAM for the Catholic Hospital Association's Sixth Annual Institute for Hospital Pharmacists held in Atlantic City in conjunction with the Association's 1954 Convention, was based on the general theme of the Convention, "Fulfilling the Objectives of the Catholic Hospital."

Sister M. Berenice, S.S.M., Chairman of the Committee on Hospital Pharmacy Practice, opened the Institute. In her introductory remarks, she reminded the students that they should treat the Institute as a miniature retreat of a professional nature.

Mrs. Evelyn M. Carlin, President of the New Jersey Society of Hospital Pharmacists, brought greetings from her Society, and Dr. Robert P. Fischelis, Secretary of the American Pharmaceutical Association, brought greetings from his organization and addressed the group on the progress gained by attending refresher courses such as the annual Institute.

Mr. J. R. Cathcart, Pharmacy Director, The Delaware Hospital, Wilmington, Delaware, gave a practical and useful presentation on the "Hospital Formulary Assuring Improved Management Through Effective Controls on Purchasing, Inventory, Storage, Costs." He said the formulary is not intended to tell the doctor what to use but what is available in the pharmacy. In this way the pharmacy could carry fewer items in larger quantities and charge less to the patient.

A review of new drugs was presented by Dr. Paul L. Wermer of the American Medical Association. He discussed, among other things, the pros and cons for polio vaccine. Other points made by Dr. Wermer included the use of tobacco in relation to cancer; and a cure for acute leukemia in young children.

A helpful and very practical paper by Dr. Kenneth Nelson, U. S. Public Health Service Hospital, Staten Island, New York, was based on the speaker's long experience in the pharmacy field. "The Function and Responsibility of the Individual Pharmacy Committee Member," together with the appointment and duties of each and duties of the chairman of the committee were discussed at length.

In his paper "Bulk Compounding—Factors Influencing the Pharmacy Policy," Mr. John A. Murphy, Chief Pharmacist, Massachusetts General Hospital, Boston, Massachusetts, dealt with problems that must be considered before inaugurating a manufacturing program. He said that the two main factors to be taken into consideration are economy and absolute necessity. By absolute necessity he meant products necessary to save life but which are not commercially available.

Dr. Jesse D. Perkinson, Associate Professor of Chemistry at the University of Tennessee, spoke on the "Pharmaceutical Properties of Isotopes" and some significant current developments. He listed the pharmaceutical and chemical properties of isotopes and stated that radiation constitutes a problem. In medical treatment, the problem is to shield the patient from unwanted radiation and from cross radiation, especially if it is being used for diagnostic purposes. An experimental hospital

Dr. Jesse D. Perkinson speaks on "Pharmaceutical Properties of Isotopes" at the Institute in Atlantic City.

Members of the C.H.A.'s Committee on Pharmacy Practice. Included in the photo are (left to right) Sister Mary Ancilla, Sister M. Berenice, Sister M. Franciscana, Sister Rebecca, and Sister Marian.

was built in Oak Ridge, Tennessee with more laboratory space than patient beds to study all of these problems.

Panel Discussions

Important phases of hospital pharmacy were treated in a panel discussion which provided opportunity for a wide range of ideas. Topics for discussion such as the pricing policy for prescriptions compounded, bulk compounded medicinals, and intravenous and other injectibles, were discussed. Participants were Allen V. R. Beck of the Indianapolis University Medical Center, Indianapolis; Herbert L. Flack, Chief Pharmacist, Jefferson Hospital, Philadelphia, and Norman Baker, The New York Hospital, New York. In considering pricing, the main factor should be the ability of the patient to pay and the locality of the hospital, it was stated; there should be standards but these should be flexible.

Another panel discussion centered on purchasing. Such topics as who should do the purchasing for the hospital pharmacy, annual needs, inventory, and procedure, budgeting, reports to the business office, provided for a wide range of views. The point was made that the pharmacist should be the key man in purchasing for the hospital pharmacy. Budgeting is important in purchasing and stock inventory must be controlled. This panel was ably conducted by Mr. V. O. Trygstad, V. A. Department of Medicine and Surgery, Washington, D. C., with F. D. Lascoff, J. Leon Lascoff and Sons, Inc., New York and R. C. Bogash, Lenox Hill Hospital, New York, participating.

How to plan and equip a pharmacy was another roundtable discussion which proved interesting and helpful. Dr. George Archambault, Chief, Pharmacy Branch, Division of Hospitals, U.S. P.H.S., Washington, D. C. together with Mr. J. T. Hogan, Construction and Maintenance, Division of Administrative Management Bureau of Medical Services, U.S.P.H.S., and Mr. V. Holbert, Administrator, Home for Incurables, Baltimore, participated. Dr. Archambault discussed the general layout, facilities and equipment, while Mr. J. T. Hogan talked about equipment to be purchased. The government does not endorse any particular make of equipment but must meet certain specifications, according to Mr. Hogan. Mr. Holbert discussed structure of the pharmacy such as wet walls, the importance of columns in the pharmacy, etc.

At the business meeting which followed the last session, Sister Mary Berenice, S.S.M. presided. Sister Mary Cherubim, O.S.F., St. Joseph Hospital, Joliet, Illinois was elected to succeed Sister Mary Berenice as a member of the Committee on Hospital Pharmacy Practice of the Catholic Hospital Association.

Certificates were awarded by the Very Rev. Msgr. Robert A. Maher of Toledo, Ohio.

Resolutions Adopted

Be it resolved that thanks be expressed to those who brought greetings from their respective societies; namely, Dr. Robert P. Fischelis from the American Pharmaceutical Association, Mrs. Evelyn J. Carlin for the New Jersey Society of Hospital Pharmacists, and Mr. Allen Beck from the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Be it resolved that thanks be expressed to all those whose presence and contributions to the program made this institute so instructive and enjoyable.

Be it resolved that the Sixth Annual Institute for Hospital Pharmacists of the Catholic Hospital Association express its deep regret for the loss of the President of the Association, Rev. Francis P. Lively.

Whereas the condition exists that some hospitals in answering questionnaires relative to hospital organization report having a pharmacy without a pharmacist; and

Whereas it is believed that the claim is due to a lack of understanding of what constitutes a pharmacy.

Be it resolved that some study be made for the purpose of providing a proper definition of pharmacy in hospitals.

Whereas many high school students are not aware of the existence of pharmacy as a profession; and

Whereas many pharmacy students are not aware of the possibilities of hospital pharmacy as a specialty.

Be it resolved that this group take measures to encourage activities aimed at the recruitment of candidates.

VIAL WASHER

by Russell A. Lovell

A useful washing and rinsing apparatus for vials and small bottles as shown in the accompanying photographs may readily be constructed by a sheet metal shop. A small faucet-type laboratory water-suction pump is used to draw detergent solution into the apparatus. The finished washer holds twelve 10, 20, 30, 60, or 100 cc. vials.

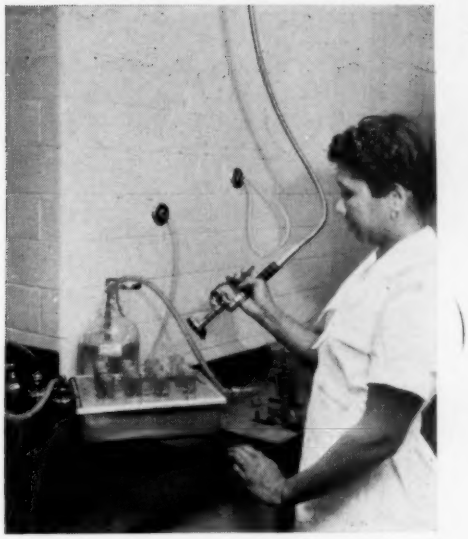
Cost

The cost of the vial washer as illustrated was as follows:

Pan and lid	$25.25
Fittings	2.19
Labor	20.00
Total cost	$47.44

Operation

The procedure used in operating the vial washer is as follows:



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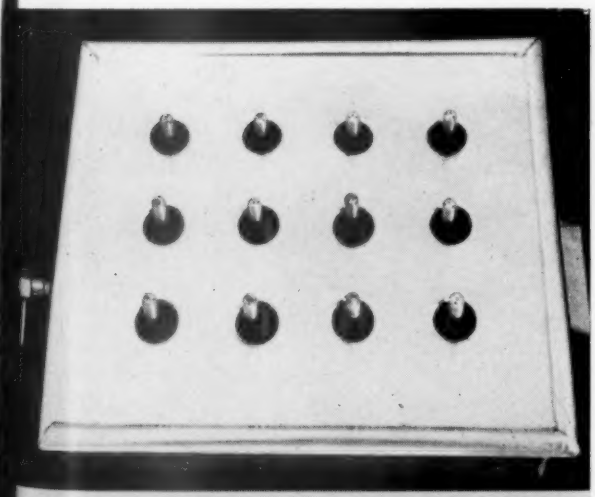
1. Vials are pre-soaked in detergent solution to remove labels and gross contaminants.
2. Rubber tubing from a laboratory water-suction pump attaches to mixing faucet of sink.
3. Rubber tubing from side-arm of laboratory suction pump drops into gallon jug of 1 percent sodium lauryl sulfate solution.
4. Vials are set over jets and water is turned on to pressure sufficient to pull detergent into washer.
5. Side-arm tubing is disconnected and vials are rinsed thoroughly.
6. Meanwhile, spray on flexible tubing is used to rinse outside of vials. (Vials are turned by hand during washing and rinsing process to insure complete coverage.)
7. Vials are then rinsed singly, three times on a distilled water rinser.

Russell A. Lovell is Chief Pharmacist at The City Hospital of Akron; Akron, Ohio.



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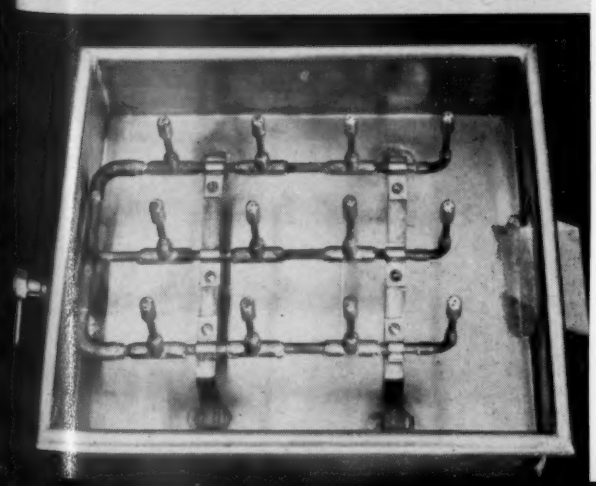

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1. *Vial washer in use. Tube from water suction pump is immersed in detergent solution. Water from the tap is being mixed with the detergent as it enters the apparatus. Outside of vials are being sprayed and cleansed.*

2. *Vial washer with the lid in place. Water from mixing faucet of sink enters through side-arm to the left. Detergent solution is mixed with tap water by means of the standard laboratory water-suction pump attached to the side-arm.*

3. *Vial washer with cover removed showing construction of inner portion of apparatus.*

therapeutic TRENDS

edited by LEO F. GODLEY

Dithienylbutenylamine Compounds As Analgesics

The most potent of four dithienylbutenylamine compounds that were studied by Flintan and Keele and reported in *Bri. J. Pharmacol. 9*:106 (March) 1954 is 3-ethylmethylamino-1:1-di-*alpha*-thienyl-l-butene. According to these investigators it was twice as effective as Demerol and one-tenth as effective as morphine in the relief of postoperative pain. It is not effective by mouth, and was given in 50 to 100 mg. doses by intramuscular injection.

This compound is more hypnotic than Demerol or morphine; it produces euphoria; and is about as depressant on respiration as is morphine and Demerol. It is less apt to produce nausea and vomiting than morphine. No significant side effects on the circulatory system, bladder, or gastrointestinal tract were noted in this study.

Vitamin U In Peptic Ulcer

Fresh cabbage juice contains an unidentified substance tentatively designated as Vitamin U. This substance possesses anti-peptic ulcer properties according to a report in *Am. J. Gastroenterol. 21*:230 (March) 1954.

In this study 100 peptic ulcer patients were given a concentrate prepared from the fresh cabbage juice. The concentrate gave comparable results to previous experiments with the raw unconcentrated juice.

Average results from this study show that pain ceased after 4.24 days and the ulcer crater healing time was 13.5 days. It is stated that these results are better than those reported in the literature with "standard" therapeutic procedures.

Procaine Amide For Penicillin Reactions

Jennings and Olansky reported in *Ann. Internal Med. 40*:711 (April) 1954, the results of their study on procaine amide used as a therapeutic and prophylactic agent for penicillin reactions.

With a group of 24 patients suffering from penicillin reactions, procaine amide produced an excellent clinical response in 13, a good response in 9, and a fair response in 2. With a comparable group of 17 patients, Benadryl produced an excellent response in 6, good in 5, fair in 3, and poor in 3.

Prophylactically, procaine amide was administered to 18 patients requiring penicillin therapy and who also were expected to elicit an allergic response to penicillin. These patients received from 900,000 to 9,000,000 units and the procaine amide was given during this therapy and from 0 to 20 days after. Fourteen of these patients showed no allergic response; four did. The dose of procaine amide used in this study was 250 mg. every 6 hours.

Elaiomycin—A Tuberculostatic Antibiotic

Elaiomycin is a new antibiotic which is isolated from submerged aerated culture filtrates of *Streptomyces hepaticus*. It was found to be markedly active against *Mycobacterium tuberculosis in vitro*. This report appeared in *Antibiotics and Chemotherapy 4*:338 (March) 1954. *In vivo* studies in animals were not outstanding; but it is quite possible that further work will produce more conclusive and favorable evidence. Research on this antibiotic was done by Ehrlich *et al* at Parke, Davis & Co.

Mantomide For Amebiasis

A preliminary report on mantomide, N-(2-4-dichlorobenzyl)-N-(2-hydroxyethyl) dichloracetamide in the treatment of amebiasis was published in *Antibiotics and Chemotherapy 4*:570 (May) 1954. Mantomide is a white powder with a bitter taste. It is relatively insoluble in water and is amebicidal in concentrations as low as 1:80,000.

In this study, 24 patients with chronic amebiasis were treated with mantomide. It was noted that the drug was very effective in removing *E. histolytica* from the feces.

Patients under 5 years of age received 250 mg. three times a day for 8 days; those between 5 and 10 years old were given 500 mg. three times a day for 10 days; and those over 10 years of age were given 750 mg. to 1 Gm. for 10 and 8 days respectively. There were no significant untoward reactions to the drug.

Mantomide was supplied by Winthrop Stearns, Inc.

Rectally Administered Urethane

Reporting in the *J. Am. Med. Assoc. 154*:1415 (Apr. 24) 1954, Suhrland *et al* at Western Reserve University School of Medicine, administered urethane rectally in suppository form to 20 patients with leukemia. They were given doses of from three to six Gm. daily over a period of from 2 weeks to 22 months.

Gastrointestinal side effects were experienced by two patients; there was no incidence of rectal irritation or hepatotoxicity. It was concluded by these investigators that rectally administered urethane was more desirable than when it is orally or intravenously administered, since side effects are less severe and the therapeutic effect is equivalent.

Urethane suppositories were furnished by Eli Lilly for this study.

Arginine For Male Infertility

In "Foreign Letters" of *J. Am. Med. Assoc. 155*: 395 (June 5) 1954, it was noted that Garrigues of Marseille reported upon the use of the amino acid arginine in the treatment of male infertility. This report was given at the June 1953 meeting of the French Society of Therapeutics and Pharmacodynamics. The amino acid was given by the oral or intravenous route to 15 sterile males over a period of from 3 to 5 weeks. A marked increase in the number and quality of spermatozoa was noted in all cases.

Further studies are being conducted to determine the optimum dosage and length of treatment necessary or desirable.

Ravocaine—A Local Anesthetic

Ravocaine (2-diethylaminoethyl 4-amino 2- propoxybenzoate hydrochloride) also known as WIN 3459-2, in combination with levarterenol was compared with procaine in combination with epinephrine for its effect as a dental anesthetic. This study was conducted at Baltimore College of Dental Surgery and reported in *J. Am. Dental Assoc. 48*:409 (April) 1954.

A 0.4 percent solution of WIN 3459-2 was comparable in effect to a 2 percent solution of procaine. This solution produced an anesthesia that was effective without pain for operative dentistry in 91 percent of the cases tried. Some pain was noted in 7 percent of these individuals; and 2 percent required a second injection. The induction time was 41 seconds, the working time was 51 minutes and the period of numbness was 3 hours.

No reactions were encountered during the study with any of the preparations used. It is concluded that the clinical toxicity of WIN 3459-2 was no greater than any other anesthetic used in dentistry.

New Anticonvulsant

Clinical evaluation of a new anticonvulsant, primidone (Mysoline) is reported in the *J. Am. Med. Assoc. 154*:827 (Mar. 6, 1954). Primidone is a compound closely related to phenobarbital and it is reported to compare favorably with phenobarbital, diphenylhydantoin (Dilantin), 3-methyl-5, 5-phenylethylhydantoin (Mesantoin), trimethadione (Tridione), and phenacemide (Phenurone) in abolishing the extensor tonic component of electrically induced convulsions in rats. It was also found to be relatively free of serious side-effects when given in amounts exceeding the recommended therapeutic dosage.

In the study reported, primidone was administered to 121 patients with one or more types of convulsive seizures. Its anticonvulsant effect could be evaluated in 72 patients who were observed for periods ranging from one to eighteen months. In all but seven, primidone was given in conjunction with one or more of the standard anticonvulsant drugs. Seizures were completely controlled in ten percent, reduced in frequency in forty-three percent, and unchanged in forty-seven percent. The greatest benefit occurred when the seizures were of the *grand mal*, psychomotor, minor, or focal types. No improvement was noted in any of the patients with *petit mal*. Side effects occurred in 65 patients, but none were serious. Drowsiness and ataxia were the two most frequent symptoms and made it necessary to discontinue the administration of primidone in 25 patients.

The study was made by the Department of Neurology, College of Physicians and Surgeons, Columbia University, and the Neurological Institute. The drug was supplied by the Imperial Chemical, Ltd. (American distributors: Ayerst, McKenna & Harrison, Ltd).

by GLENN SONNEDECKER

Secretary, American Institute of the History of Pharmacy

IN PHARMACY

PERSPECTIVES

People with brains in the year A. D. 1954 had best be on guard. Those who have brains and try to use them may be suspect in certain circles. Those who have brains and don't use them may find life less bothersome but more dangerous.

"Molding public opinion," that is to say, managing our thoughts, has become big business. And today, even when thoughts are our own, we may often wish they were someone else's!

Then, for unwary minds, there are brain-washers, brain-pickers, and brain-analyzers. The latter category draws to it much of the status and function of a modern priesthood, which takes a mind fallen into disarray and sorts it out into component "complexes," "fixations," "repressions," "projections," and what not—concepts that we moderns can readily recognize and misunderstand.

Especially since Freud began to dig about in cobwebbed corners of the mind, assorted psychosectarians have been busily exploring our mental life, with important results. One branch of these brain explorers concern themselves with personality patterns, and their fit and misfit into various matrices of life.. Their first inroads on armchair philosophizing about this came with those ubiquitous accoutrements of modernity: the Questionnaire and the Interviewer.

If the armchair method of deriving personality types sometimes conjured up an idealized farmer or pharmacist rarely found on land or sea, the busy tabulators encountered other criticisms about subjectivity and non-distinguishing results.

Several presumed refinements of personality study meanwhile emerged. One fascinating approach we owe largely to the Swiss psychiatrist Herman Rorschach, who formulated his inkblot method just after the first World War. Since the 1920's it has gained popularity in the U.S.A. as one tool for assessing the whole personality, but as a personality test it remains controversial and difficult to administer.

As most hospital pharmacists already know, the Rorschach test hinges on the principle of free association. Inkblots lack conventionalized meaning; hence the things people see in them appears to be a more complete function of personality than the associative response to series of words or pictures.

Several years ago Dr. Goldie Kaback applied the method to a group of pharmacists and pharmacy students in her doctoral research at Columbia University under the direction of Professor Harry Kitson. Since the experiment received little attention in the pharmaceutical press, a brief discussion of it here seems not out of place—although we do not presume to assess the significance of Dr. Kaback's results.*

With the cooperation of pharmaceutical associations and schools Dr. Kaback studied 75 pharmacists and 75 pharmacy students in New York City, Buffalo and Rochester, N. Y., and compared them with similar groups from the field of accountancy. She tried to find out whether or not fields have characteristic differences, and whether students have responses peculiar to their job aspirations. Previous studies of mixed vocational groups provided a kind of control, or base line, for Dr. Kaback's work.

She hoped to get evidence on what Spranger implies by saying: "Nature seems to stamp the soul with the special conditions under which he [man] wrests his livelihood from her." Further insight into a vocation's effects was expected from

*Goldie Ruth Kaback, *Vocational Personalities: An Application of the Rorschach Group Method,* published as No. 924 of "Contributions to Education," Teachers College, Columbia University, New York, 1946.

Glenn Sonnedecker

inclusion of students not yet subjected to the presumed uniforming influence of pharmacy or accountancy on personality.

Rorschach Response by Pharmacists

How did the pharmacists and the pharmacy students respond to the inkblot test? Here are some highlights of the interpretation, based entirely on the Rorschach group method. Interpretation is primarily in terms of the relation of the four groups to each other: pharmacists, pharmacy students, accountants, and accountancy students.

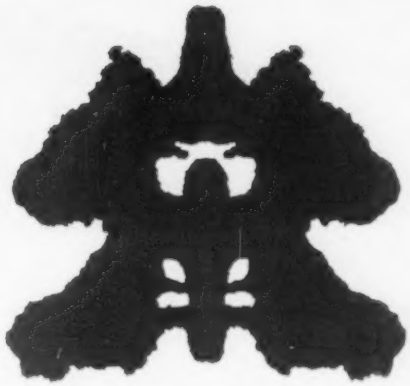
An intellectual superiority of the accountancy groups, on the average—judged from certain types of inkblot responses—appears statistically significant but not marked. Intellectual flexibility appears more marked among both the older professional groups than among the student groups. But practicing pharmacists showed less general capacity for creativeness than the other groups. Somewhat curiously, both student groups responded to the inkblots in a way indicating more practical, concrete thinking than that of practicing pharmacists or accountants.

Emotionally, the pharmacists and pharmacy students showed more tendency toward impulsive behavior than did the accountancy groups. The accountancy students as a group offered the most favorable picture of personality stability, pharmacists the least favorable—although all groups were within the range of "adjusted personalities" as defined by Rorschach technicians. In the number of responses that are interpreted as introversive, the accountancy groups exceeded the pharmaceutical groups.

All groups had a normal range of interests, but the Rorschach responses indicate that the pharmacists had, relatively, a limited number of interests. This was confirmed by supplementary questionnaires in which the participants provided personal data. Among the accountants 92 percent mentioned one or more avocational interests, while more than half the pharmacists failed to list a leisure-time activity or stated they had none.

We do not find here any startling illumination of what we might mean when we say: "He is a typical pharmacist." In fact one of Dr. Kaback's main conclusions is that the investigation failed to reveal the existence of a pharmacy or accountancy personality type.

It is especially interesting that "The responses of the students resemble those of the corresponding professional group in but few respects." Yet there is no basis for saying that "the group now preparing for one profession would have been better advised to enter the other." The diversity of personality traits and lack of definite pattern far overshadow special characteristics that are pushed above the horizon on the basis of averages.



Inkblots similar to these are the basis of the Rorschach test.

This seems to be the first large application of the Rorschach group method to "groups of normal adults actively engaged in two professions or preparing for these professions." It remains to be seen whether or not this tentative application of the Rorschach technic—to the layman a bizarre one—will open a new approach to vocational selection or the assessment of personality differences characteristic of one's calling.

Brain explorers have made at least two other forays into the pharmaceutical personality, one by way of the Allport-Vernon "study of values," the other following Strong's method of inventorying vocational interests. But these we shall have to talk about on another occasion.

timely drugs

Achromycin Ophthalmic Ointment

. . . (tetracycline, Lederle) for the treatment of ocular infections caused by gram-positive and gram-negative bacteria is now available from Lederle Laboratories. It is effective in infectious keratitis, conjunctivitis and blepharitis. Achromycin Ophthalmic Ointment contains 10 mg. per gram (1 percent) of tetracycline hydrochloride in a petrolatum-lanolin base. It is available in ⅛ ounce tubes.

Achromycin Tablets

. . . (tetracycline, Lederle) are available from Lederle Laboratories, American Cyanamid Company. Each Achromycin soluble tablet contains 50 mg. of tetracycline hydrochloride and may be dissolved in bland or flavored liquids for oral administration.

Ambodryl Hydrochloride

. . . for parenteral use, has been announced by Parke, Davis and Co. Steri-Vial Ambodryl is indicated in general antihistaminic therapy, acute allergic states for immediate relief, and for those patients not responding quickly enough to oral forms of antihistamines.

Antirabies Serum

. . . an agent for the preventive treatment of human rabies, has been released by Lederle Laboratories Division, American Cyanamid Company. It is a refined and concentrated serum derived from hyperimmunized horses. Antirabies serum is recommended as an adjunct to rabies vaccine in the prophylactic treatment of all individuals who have been exposed to rabies infection.

Affording rapid antibody response, Antirabies Serum offers an extra margin of safety in rabies prophylaxis and will be especially welcome in the treatment of patients who have been bitten about the head and neck. In some cases the serum may allow a reduction in the number of injections of rabies vaccine, thereby reducing the incidence of possible postvaccinal neuroparalysis following the administration of vaccine.

Blastomycin

. . . for use in the skin-test diagnosis of blastomycosis, also known as Gilchrist's disease, has been made available by Parke, Davis and Co. Blastomycosis is a fungus infection which may occur in any part of the body, but particularly attacks the skin, lungs and bones, resulting in lesions (unhealing sores).

The new Parke, Davis product is the sterile filtrate from a culture of **Blastomyces dermatitidis** and is standardized according to the National Institutes of Health regulations.

The skin test was devised to aid in the diagnosis of blastomycosis because the disease is similar to certain forms of tuberculosis, syphilis, certain fungus-type infections, and a number of other conditions.

The recommended test dosage is prepared by diluting the vial of concentrated Blastomycin (.01 ml.) with 1.0 ml. of diluent. In performing the test, the company said, 0.1 ml. of the diluted Blastomycin is injected intracutaneously into the forearm of the patient and the reaction is read 24 to 48 hours later.

Parke, Davis advises that the tuberculin and histoplasmin test should be employed in conjunction with the Blastomycin in order to exclude the possibility of tuberculosis and histoplasmosis.

Blastomycin is supplied as two 1 ml. vials, one containing 1 ml. of concentrated Blastomycin and the other containing 1 ml. of diluent. Once the material, which is available only on prescriptions, has been diluted it may be kept for 30 days at refrigerator temperature without loss of potency.

Cholografin

. . . (iodipamide, Squibb) is a new contrast medium providing an intravenous technic for rapid radiographic visualization of the gallbladder and biliary ducts. It may be used without surgery to visualize the biliary ducts in patients who have had the gallbladder removed, or, who have a nonfunctioning gallbladder.

Cholografin is the di-sodium salt of N,N'-adipyl-bis(3-amino-2,4,6,-triiodo)-benzoic acid and its empirical formula is $C_{20}H_{12}O_6N_2I_6Na_2$. The radiopaque crystalline powder forms a colorless, nearly perfect isotonic solution in the aqueous medium. The higher iodine content of Cholografin, 64.32 percent, as compared with other contrast media, explains its high degree of radiopacity. The iodine atoms, moreover, are firmly bound in the molecule and are not split off after Cholografin is injected into the blood. After intravenous injection Cholografin is promptly and rapidly excreted by the liver, the first traces appearing in the bile within several minutes. Within 15 to 20 minutes sufficient radiopaque substance has appeared in the bile to reveal an x-ray shadow of the hepatic and common bile ducts. Concentrations in the bile may reach 30 to 100 times those seen in the blood. Within an hour after injection, filling of the gallbladder begins. Generally, the highest concentrations of the compound are detected in the gallbladder in from 2 to 2½ hours, although there is considerable variation among individuals. About 90 percent of the medium is finally eliminated in the feces without reabsorption into the entero-hepatic circulation.

Only 10 percent or less of the intravenously injected compound is generally excreted by the kidneys unless liver function is impaired. In the presence of liver damage, the medium is excreted by the kidneys in approximately the same time as that required by the normal liver.

When Cholografin is to be administered, every patient should first be tested for sensitivity to Cholografin by the intradermal injection of 0.1 ml.

Clistin R-A

. . . provides a repeat action tablet containing Clistin Maleate 4 mg. in the outer coating which gives immediate release and 4 mg. in the specially coated core for delayed action. Clistin R-A Tablets, supplied by McNeil Laboratories, Inc., provide an additional form of medication utilizing the outstanding advantages offered by Clistin Maleate.

Cortef Sterile Solution

. . . is a concentrated solution of hydrocortisone which, when properly diluted, may be administered intravenously. A product of The Upjohn Company, Cortef Sterile Solution is provided in 20 ml. ampuls, each containing hydrocortisone, 100 mg.; alcohol, 50 percent; and water for injection, q.s.

Cortef Sterile Solution (Intravenous) may be used whenever a rapid and intense hormonal effect is indicated to stabilize blood pressure and plasma volume and to counteract severe allergic manifestations. Indications include poor surgical risks; shocklike states associated with serious stress conditions, such as severe injuries and extensive surgical procedures; Addisonian patients during stress; "cortisone patients" during surgery or acute stress; adrenal surgery; severe infections such as Waterhouse-Friderichsen syndrome; and acute allergic conditions such as status asthmaticus and allergic drug reactions.

Cortef Sterile Solution, since it contains 50 percent alcohol, must be diluted before administering intravenously. The contents of one 20 ml. ampul are added to 500 to 1000 ml. of Isotonic Sodium Chloride Solutions, 5 percent or 10 percent Dextrose Solution, or 5 percent gelatin solution (Plazmoid). The resultant solution is infused over a period of two to ten hours and may be repeated as indicated in individual cases.

Erythrocin Neomycin Ointment

. . . is a combination of Erythrocin (erythromycin, Abbott) 1.0 percent and neomycin sulfate, 0.5 percent in a mineral oil and petrolatum base. Clinical indications include impetigo, folliculitis of beard or other regions, infectious eczematoid dermatitis, furunculosis, granuloma pyogenicum, erythema multiforme, contact dermatitis, allergic eczema, seborrheic dermatitis, herpes simplex, perleche and acne. Erythrocin Neomycin Ointment is a product of Abbott Laboratories.

Eurax Lotion

. . . is a new form of the antipruritic agent, Eurax Cream, which is a product of Geigy Pharmaceuticals.

As with the cream, each application of Eurax Lotion affords 6 to 10 hours of symptomatic relief from itching in most skin disorders. The preparation is particularly effective in the treatment of the common summer dermatitides.

Cosmetically pleasing, the lotion is smooth, white, odorless, greaseless and non-staining. It is recommended as a prescription vehicle for combination with other therapeutic agents in common use, including hydrocortisone.

In addition to its prompt and sustained action, Eurax Lotion 10 percent may be employed over large areas of body surface and for prolonged treatment periods. It is especially useful for long-term therapy of chronic dermatoses. Subjected to clinical investigation on hundreds of patients, no drug resistance, sensitivity or other disturbing side effects have been reported. Eurax is also a potent scabicide, one or two applications eradicating infection in virtually 100 percent of cases.

Chemically, the lotion contains 10 percent Eurax (brand of crotamiton), N-ethyl-o-crotonotoluide, emollient base.

Ferritrinsic

. . . is a blue-coated, compressed tablet combining intrinsic factor concentrate, B_{12} complex with iron, liver and vitamins. It is a product of The Upjohn Company. Ferritrinsic is indicated in the treatment of anemias commonly associated with blood loss, pregnancy, infections, restricted diet, metabolic diseases, and old age. It rapidly restores a normal blood picture and feeling of well-being in patients with hypochromic and nutritional anemias.

Hydrocortone Lotion

. . . containing hydrocortisone 1 percent, has been released by Sharp & Dohme, Division of Merck & Co., Inc.

This form of Hydrocortone for topical use resulted from research and clinical studies directed toward developing a dosage form more cosmetically acceptable, simpler to apply, more effective because of its spreading qualities, and more advantageous when large areas are involved. A further factor was ease of application to various dermatoses of the hairy areas.

Clinical investigations, according to the announcement, have revealed a high degree of patient acceptance. Reports indicate that the lotion does not burn or sting when applied; does not stain skin, clothing or other objects; has no disagreeable odor; and is not uncomfortable or unsightly when rubbed in well. There were no instances of allergic sensitization even after prolonged use, and no evidence of absorption with resulting systemic effects.

Indon

. . . is an anticoagulant tablet which is effective when given orally and gives a rapid onset of therapy for a shorter duration of action. Chemically, it is phenylindandione (2-phenyl-1, 3-indandione). Indon is recommended in the treatment of such conditions as thrombo-embolic disease, both real and threatened. It is supplied by Parke, Davis and Co.

Intrinase

. . . in the form of compressed tablets containing 0.5 U.S.P. antianemia oral unit, is marketed by The Upjohn Company. It is used in the treatment of pernicious anemia and post-gastrectomy anemia, and, combined with folic acid, may be used in treatment of other types of macrocytic anemias, including macrocytic anemia of pregnancy and tropical and non-tropical sprue.

In patients with pernicious anemia, Intrinase produces a prompt clinical and hematological response and prevents or halts the progress of spinal cord lesions.

Nidar

. . . is a barbiturate combination made available by The Armour Laboratories. It is used for individualized control of tension peaks,

through the combination of four barbiturates of varying periods and onsets of action.

Nyloxin Ampuls

. . . is a solution of cobra venom with silicic and formic acids prepared by the laboratories of Hynson, Westcott & Dunning, Inc. Nyloxin is used clinically for the treatment of pain in various forms of chronic arthritis. Nyloxin provides a wide margin of safety and does not produce undesirable by-effects.

Impressive results in a series of 466 clinical cases of chronic arthritis have been reported by Dr. Kenneth D. Bryson in **American Surgeon,** July, 1954. These results are confirmed by Drs. William R. Lumpkin and Warfield M. Firor in a series of 88 clinical cases also reported in **American Surgeon,** July, 1954. Relief of pain is reported in about 80 percent of the cases treated.

Nyloxin ampuls are administered subcutaneously at weekly intervals. The usual sequence of dosage is 0.5 ml., 1 ml., 1.5 ml., 2 ml., 2.5 ml., and 3 ml. When the injection reaches 1 ml. it is divided into two equal parts and is separately injected in each arm or leg. The maximum relief of symptoms is usually reached by the sixteenth week; however, some cases have shown marked improvement during the tenth to the sixteenth week.

Polycycline Suspension '250'

. . . (tetracycline, Bristol) is a stable liquid form of the antibiotic, tetracycline, for oral use. No compounding is required prior to dispensing and the product may be stored at normal room temperature for 18 months. This stability has been accomplished by the use of a palatable oil vehicle which preserves the potency of the tetracycline. It provides a creamy, crushed-fruit flavored suspension that is highly suitable for children and for those adults who for one reason or another prefer liquid medication over capsules or tablets. This product possesses all the advantages of Polycycline over earlier broad spectrum antibiotics such as increased stability, greater solubility and rare occurrence of side effects. These advantages result in more rapid absorption and prolonged blood levels.

Active against a wide range of gram-positive and gram-negative organisms, Polycycline Suspension '250' is indicated for the treatment of pneumonia, bronchitis, and other respiratory infections; genito-urinary infections; meningitis; bacillary dysentery, venereal infections, and certain virus infections.

Polycycline Suspension '250' is supplied in 30 ml. bottles, each teaspoon (5 ml.) providing 250 mg. of Polycycline.

Primoplex

. . . is a new geriatric liver and vitamin preparation marketed by Lederle Laboratories. Supplied in vials with 2 ml. ampuls of diluent, Primoplex is administered intramuscularly and is indicated for prevention and treatment of B complex deficiencies. It is a valuable adjunct in nutritional deficiencies of all ages and for pre-operative and post-operative supplementation.

Pro-K-Mycin

. . . a combined penicillin and dihydrostreptomycin antibiotic, has been placed on the market by Lederle Laboratories. Pro-K-Mycin is indicated in the treatment of mixed infections caused by gram-positive and gram-negative organisms susceptible to both penicillin and dihydrostreptomycin, such as acute gonococcal infections, urinary tract infections, bacterial endocarditis, respiratory infections and infected wounds.

Pro-K-Mycin is supplied in single dose vials and is easily prepared by the addition of Water for Injection U.S.P. or Sterile Isotonic Sodium Chloride Solution for Parenteral Use U.S.P. Each dose contains Crystalline Procaine Penicillin G, 300,000 units; Buffered Crystalline Potassium Penicillin G, 100,000 Units; and Dihydrostreptomycin Sulfate, 0.5 Gm.

Reserpoid

. . . is a pure crystalline alkaloid (reserpine) obtained from the roots of **Rauwolfia serpentina.** Reserpoid is available in tablet form from The Upjohn Company, each tablet containing either 0.1 or 0.25 mg. of reserpine.

Reserpoid exerts its hypotensive effect through suppression of sympathetic activity within the central nervous system and through peripheral vasomotor action. It also has a distinctive non-hypnotic sedative action which calms and relaxes the patient. Reserpoid moderately reduces the blood pressure and relieves tachycardia, palpitations, anxiety and headache.

It is used in the treatment of patients with mild to moderate essential hypertension and may be used concurrently with more potent drugs, permitting a smaller dose of both. It is also used in elderly hypertensive patients with arteriosclerotic changes which contraindicate the use of more potent antihypertensive drugs. In menopausal patients with coexistent hypertension or distressing emotional disturbances not adequately controlled by estrogens, Reserpoid is a useful adjuvant.

Reserpoid is given orally, and the dosage varies with the severity of the case. The average starting daily dosage is 0.75 to 1.0 mg. given in divided doses, or as a single dose, for two to three weeks. When satisfactory response has been obtained, the dosage is gradually reduced. The maintenance dose may be as little as 0.1 mg. daily in some patients.

Sterosan

. . . for the local treatment of skin disorders, is available in both cream and ointment form from Geigy Pharmaceuticals. Both the cream and the ointment contain three percent chlorquinaldol (5,7-dichloro-8-hydroxyquinaldine), iodine-free oxyquinoline derivative. Sterosan has a bacteriostatic and fungistatic action and is effective against a wide range of skin pathogens. It is indicated in the treatment of pyogenic, mycotic and mixed infections of the skin.

Syrup Sustinex

. . . is a high potency Vitamin B Complex preparation available from McNeil Laboratories. The product contains increased dosages of riboflavin and vitamin B_{12}.

Ziradryl Cream

. . . is an ointment combination of 2 percent Benadryl hydrochloride and 4 percent zirconium oxide (as zirconium carbonate) in a water-miscible base. A Parke, Davis product, Ziradryl Cream is used in the prevention and treatment of dermatitis resulting from exposure to poison ivy or poison oak.

CURRENT LITERATURE

edited by SISTER MARY ETHELDREDA, *St. Mary's Hospital, Brooklyn, N.Y.*

American Professional Pharmacist

MAY, 1954—"Problem Forum." Comments on questions raised by hospital pharmacists at meetings and in individual letters to the editor of the Forum. *page 466*

JUNE, 1954—"The Problem of Duplication in a Small Hospital," by Robert W. Case, Pharmacist, Olean General Hospital, Olean, N. Y. Summarizes a plan instituted at a 150-bed hospital to meet this problem without resorting to a formulary. *page 534*

Hospital Management

MAY, 1954—"Faster Dispensing Results From Proper Arrangement of Prescription Unit," by William E. Hassan, Jr., Ph.D. Describes the equipment, fixtures, and dispensing method devised for a remodeled outpatient unit. *page 90*

JUNE, 1954—"The Outlook is Good for Continued Supplies of Glycerine." An account of the many services it performs in the hospital today. *page 70*

The Hospital Pharmacist (Canada)

MARCH-APRIL, 1954—"The Pharmacist and Civil Defence," by J. E. Smith, Chief Pharmacist, Royal Jubilee Hospital, Victoria, B.C. Outlines the pharmacists' role in the Civil Defense Health Service Program (Canada). *page 89*

MAY-JUNE, 1954—"Teaching Pharmacology to Nurses," by Noreen Malleck. Observations of a student in pharmacy at the University of Toronto. Included is a short list of basic texts and the advantages derived by having pharmacists teach pharmacology to nurses are outlined. *page* 158

"A New Approach to the Solution of Drug Control in a Small Hospital," by E. W. Roeder, Administrator, Alexander Hospital, Ingersoll, Ontario. An administrator outlines a procedure for handling ward stocks in an institution not having the services of a pharmacist. *page* 162.

Hospitals

JUNE, 1954, Part II—Administrators Guide Issue. Included in the Management Guides is a section on Pharmacy entitled "Basic Drug Stocks for Nursing Units." Describes factors for selecting stock drugs, methods of establishing basic drug stocks on nursing units and lists a suggested standard drug list for nursing units. *page* 423

J. Am. Pharm. Assoc., Pract. Pharm. Ed.

MAY, 1954—"National Institutes of Health Clinical Center Pharmacy," by John A. Trautman, M.D., Director, Clinical Center, and Milton W. Skolaut, Chief, Pharmacy Department. Gives complete story with photographs on the functions and operation of the Pharmacy Department at the National Institutes. *page 292*

JUNE, 1954—"Some Aspects of Radioisotope Therapy," by G.B. Hutchinson. A brief review of the use of isotopes in therapy and the role of the pharmacist in handling radioactive preparations. *page 360*

"C.H.A. Convention and Institute." Includes report on these meetings along with photograph of exhibit sponsored by the Division of Hospital Pharmacy of the A.Ph.A. and ASHP. *page* 375

Modern Hospital

JUNE, 1954—"A Good Formulary Depends on a Good Committee," by William E. Hassan, Jr., Assistant Professor of Pharmacology and Consultant in Hospital Pharmacy, Massachusetts College of Pharmacy, Boston. Describes the unique Therapeutics Committee of Peter Bent Brigham Hospital in Boston, the procedure followed in devising a hospital formulary. *page 94*

Southern Hospitals

JUNE, 1954—"After Hours," by Hal D. Sharpe. Describes several methods of handling after hour calls. page 46

JULY, 1954—"A Pharmacist for 50 Beds." Comment of a hospital administrator on the advantages of a pharmacist in a small hospital. *page 40*

Tile and Till

MAY-JUNE, 1954—"The Retail Pharmacist's Opportunity in Small Hospitals," by Don E. Francke. Outlines the role the retail pharmacist may take in providing pharmaceutical service to the small hospital. *page 44*

Notes and Suggestions

by JOHN T. MURPHY

PRACTICAL FORMULAS FOR USE IN HOSPITALS

The following formulas for injectible preparations are among those presented at the recent Institute on Hospital Pharmacy by Mr. John Murphy, Chief Pharmacist at the Massachusetts General Hospital, Boston. Several of the formulas presented are of especial value to hospital pharmacists because they represent products for which there is no official preparation, or for which the official compendia do not give working formulas.

THE EDITOR

INJECTION DIPHENYLHYDANTOIN SODIUM

Diphenylhydantoin Sodium	5 Gm.
Propylene Glycol	40 cc.
Ethanol 95%	10 cc.
Water for Injection, to make	100 cc.

Add diphenylhydantoin sodium to about 50 cc. of water, add propylene glycol, ethanol, and sufficient water to make 100 cc. If necessary, add sodium hydroxide to *p*H 12. Sterilize by filtration through bacterial filter. Fill into 5 cc. sterile vials, type I. Plug and seal. *p*H about 12.

Label: Injection Diphenylhydantoin Sodium
5 cc. = 0.25 Gm.

INJECTION INVERT SUGAR

Sodium Chloride	100 Gm.
Levulose	150 Gm.
Dextrose	150 Gm.
Benzyl Alcohol	10 cc.
Water for Injection, to make	1,000 cc.

Filter through glass filter and fill into 5 cc. vials, type I. Plug and seal. Autoclave at 121° C. for 5 minutes. *p*H is 4 - 5.

Label: Injection Invert Sugar
(Sclerosing Solution)

INJECTION QUINIDINE LACTATE

Quinidine Alkaloid (Natural)	30.0 Gm.
Lactic Acid 1 N.	92.5 cc.
Thiourea	0.4 Gm.
Chlorobutanol Solution 0.5%, to make	200.0 cc.

Make 1 N. lactic acid using freshly distilled water. Transfer to 100 cc. type I glass bottles. Seal and autoclave at 121° C. for 10 minutes.

Make chlorobutanol solution using freshly distilled water, dissolve 0.4 Gm. thiourea in 100 cc. of this solution and transfer to 100 cc. type I glass bottles. Seal and autoclave at 121° C. for 10 minutes.

In a sterile mixing cylinder react the quinidine with the lactic acid to produce a solution, *p*H 4 - 5. Then add sufficient chlorobutanol-thiourea solution to make 200 cc. Mix and filter through sterile bacterial filter assembly. Fill into sterile 10 cc. vials, type I. Plug and seal.

Label: Injection Quinidine Lactate
1 cc. = 0.15 Gm. Quinidine

INJECTION APOMORPHINE HYDROCHLORIDE

Apomorphine Hydrochloride	0.5 Gm.
Chlorobutanol	0.5 Gm.
Sodium Bisulfite	0.2 Gm.
Sodium Chloride	0.4 Gm.
Hydrochloric Acid 0.1 N.	2.0 cc.
Water for Injection, to make	100.0 cc.

Make a solution of chlorobutanol, sodium bisulfite, sodium chloride, hydrochloric acid, and water for injection, and fill into 100 cc. vials, type I. Seal and sterilize at 121° C. for 8 minutes.

Dissolve the apomorphine hydrochloride, using a sterile volumetric flask, in sufficient of the above solution to make 100 cc. Sterilize by filtration through sterile glass bacterial filter into sterile reservoir. Fill into sterile 5 cc. vials, type I, plug and seal.

Label: Injection Apomorphine Hydrochloride
1.2 cc. = 6 mg.
1.0 cc. = 5 mg.
0.8 cc. = 4 mg.
0.4 cc. = 2 mg.

INJECTION ATROPINE SULFATE

Atropine Sulfate	0.5 Gm.
Sodium Bisulfite	1.0 Gm.
Sodium Chloride	6.3 Gm.
Chlorobutanol	5.0 Gm.
Water for Injection, to make	1,000.0 cc.

Adjust *p*H, if necessary, to 4 - 5. Filter through glass filter. Fill into 10 cc. vials, type I, plug and seal. Sterilize at 121° C. for 5 minutes.

Label: Injection Atropine Sulfate
1.2 cc. = 0.6 mg.
0.8 cc. = 0.4 mg .
0.6 cc. = 0.3 mg.

INJECTION CODEINE PHOSPHATE

Codeine Phosphate	50 Gm.
Sodium Bisulfite	1 Gm.
Chlorobutanol	5 Gm.
Water for Injection, to make	1,000 cc.

Adjust *p*H, if necessary, to 4 - 5, filter through glass filter. Fill into 10 cc. or 20 cc. vials, type I. Plug and seal. Sterilize at 121° C. for 5 to 7 minutes according to vial size.

Label: Injection Codeine Phosphate

1.2 cc. = 60 mg.
0.6 cc. = 30 mg.
0.3 cc. = 15 mg.

INJECTION DIHYDROMORPHINONE HYDROCHLORIDE

Dihydromorphinone Hydrochloride	2.0 Gm.
Sodium Bisulfite	0.6 Gm.
Chlorobutanol	3.0 Gm.
Sodium Chloride	3.5 Gm.
Water for Injection, to make	600.0 cc.

Adjust *p*H, if necessary, to 4 - 5, filter through glass filter. Fill into 10 cc. vials, type I. Plug and seal. Sterilize at 121° C. for 5 minutes.

Label: Injection Dihydromorphinone Hydrochloride

1.2 cc. = 4 mg.
0.9 cc. = 3 mg.
0.6 cc. = 2 mg.

INJECTION MORPHINE SULFATE

Morphine Sulfate	12.5 Gm.
Sodium Bisulfite	1.0 Gm.
Chlorobutanol	5.0 Gm.
Water for Injection, to make	1,000.0 cc.

Adjust *p*H, if necessary, to 4 - 5. Filter through glass filter. Fill into 10 cc. or 20 cc. vials, type I. Plug and seal. Sterilize at 121° C. for 5 or 7 minutes according to vial size.

Label: Injection Morphine Sulfate

1.2 cc. = 15 mg.
0.8 cc. = 10 mg.
0.6 cc. = 8 mg.

INJECTION MORPHINE AND ATROPINE SULFATES

Morphine Sulfate	10.0 Gm.*
Atropine Sulfate	0.4 Gm.*
Sodium Bisulfite	1.0 Gm.
Chlorobutanol	5.0 Gm.
Water for Injection, to make	1,000.0 cc.

Adjust *p*H, if necessary, to 4 - 5. Filter through glass filter. Fill into 5 cc. vials, type I. Plug and seal. Sterilize at 121° C. for 5 minutes.

Label: Injection Morphine and Atropine Sulfates

1 cc. = 10.0 mg. Morphine Sulfate
0.4 mg. Atropine Sulfate

* May be changed to meet special requirements.

INJECTION MORPHINE SULFATE AND SCOPOLAMINE HYDROBROMIDE

Morphine Sulfate	10.0 Gm.*
Scopolamine Hydrobromide	0.4 Gm.*
Sodium Bisulfite	1.0 Gm.
Mannitol	100.0 Gm.
Chlorobutanol	5.0 Gm.
Water for Injection, to make	1,000.0 cc.

Adjust *p*H, if necessary, to 4 - 5. Filter through glass filter. Fill into 5 cc. vials, type I. Plug and seal. Sterilize at 121° C. for 5 minutes.

Label: Injection Morphine Sulfate and Scopolamine Hydrobromide

1 cc. = 10.0 mg. Morphine Sulfate
0.4 mg. Scopolamine Hydrobromide

* May be changed to meet special requirements.

INJECTION SCOPOLAMINE HYDROBROMIDE

Scopolamine Hydrobromide	0.5 Gm.
Mannitol	100.0 Gm.
Sodium Bisulfite	1.0 Gm.
Chlorobutanol	5.0 Gm.
Water for Injection, to make	1,000.0 cc.

Adjust *p*H, if necessary, to 4 - 5. Filter through glass filter. Fill into 5 cc. vials, type I. Plug and seal. Sterilize at 121° C. for 5 minutes.

Label: Injection Scopolamine Hydrobromide

1.2 cc. = 0.6 mg.
0.8 cc. = 0.4 mg.
0.6 cc. = 0.3 mg.

INJECTION PHENOBARBITAL AND ATROPINE SULFATE*

Phenobarbital	50.0 Gm.
Atropine Sulfate	0.3 Gm.
Sodium Bisulfite	1.0 Gm.
Propylene Glycol	700.0 cc.
Ethanol 95 %	80.0 cc.
Water for Injection, to make	1,000.0 cc.

Adjust *p*H, if necessary, to 4 - 5. Sterilize by filtration through bacterial filter. Fill into sterile 10 cc. vials, type I, plug and seal.

Label: Injection Phenobarbital and Atropine Sulfate

1 cc. = 50.0 mg. Phenobarbital
0.8 mg. Atropine Sulfate

* Scopolamine hydrobromide, morphine sulfate, or meperidine hydrochloride may be used if required.

Arizona Society during the current year include the During the business session, Nor-

ASHP affiliates

Cleveland Society

The Cleveland Society of Hospital Pharmacists met for its annual dinner meeting at Schuchert's Chalet located at North Royalton, Ohio on May 26, 1954. Following the dinner, a business session was held at which time announcements were made regarding the forthcoming Institute on Hospital Pharmacy, and the Convention of the A.Ph.A. as well as the ASHP Annual Meeting. Also considered was the investigation being made by the Ohio State Attorney General regarding narcotic conditions in the state. The president of the Cleveland Society was directed to contact the president of the Ohio Society regarding developments in the investigation.

Officers of the Cleveland Society elected to serve during the 1954-1955 term include the following: Gabriel Brown, Cleveland State Hospital, *President;* Betty Job, St. Luke's Hospital, *Vice-President;* Patti Freed, Highland View Hospital, *Secretary;* and Robert G. Stockhaus, University Hospital, *Treasurer.*

Northern California Society

Dr. George Loquvan, Pathologist at the East Oakland Hospital in Oakland, California was the principal speaker for the June 8 meeting of the Northern California Society. His subject was "John Barleycorn on the Highway." The meeting was held at St. Mary's Hospital in San Francisco with President Claude Busick presiding.

Since this was a joint meeting with the Northern California Branch of the American Pharmaceutical Association the officers of the parent group were introduced, including *President* Wilbur Holden, *Vice-President* Felix Conte, *Treasurer* Stephen Dean, and *Secretary* Marie Kuck.

In outlining plans for the Workshop which was scheduled for July 17 in San Francisco, the following topics were announced: Hospital Organization, Your Responsibility As a Department Head, Staff Relations, Human Relations, Inventory and Purchasing Control, and Manufacturing.

Southern California Society

The third regular meeting of 1954 of the Southern California Society of Hospital Pharmacists was held at the Temple Hospital in Los Angeles on Wednesday, May 12. There were 31 members present. The meeting was called to order by Miss Lilli Weil, President, and turned over to Mr. Harry Anzis, Pharmacist at Temple Hospital, who introduced Mr. Edward Nedow, Administrator of the hospital. Mr. Nedow welcomed the group and then gave a short description and history of the hospital and its functions.

During the business session, Mr. Joe Ball reported on the work of the Legislative Committee and Miss Florence Martin reported on plans for the Convention of the Association of Western Hospitals which was held in Los Angeles on April 26-27.

Indiana Chapter

Members of the Indiana Chapter of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS participated in the annual Convention of the Indiana Pharmaceutical Association held on June 15 at French Lick. A panel discussion covering the subject, "The Retail Pharmacist, Community and Hospital," was of considerable interest to those attending the Convention.

The second quarterly meeting of the Indiana Chapter was held at Purdue University on April 12 in conjunction with the Professional Pharmacy Clinic. During the meeting, a round table discussion on handling narcotics in hospitals was held, with Mr. Theodore Hazer, Narcotic Agent with the Bureau of Narcotics, Indianapolis as the guest speaker.

Massachusetts Society

"Narcotic Control in the Hospital," was the subject in a panel discussion at the May 19 meeting of the Massachusetts Society of Hospital Pharmacists. With Mr. Alfred Rosenberg, U.S. Public Health Service Hospital in Boston as moderator, it was concluded that hospital pharmacists should strive for standardization of narcotics.

During the meeting which was held at St. Vincent's Hospital in Worcester, Mass., Mr. Joseph Shibel, Secretary-Treasurer of the New England Hospital Council, Hospital Pharmacy Section, gave a report on a meeting held in Providence on April 21. Dr. William E. Hassan, President of the Massachusetts Society was elected President of the Hospital Pharmacy Section at this meeting.

This was the beginning of a new Society year and the following committees were appointed: *Program*—Joseph Shibel, *Chairman;* Alfred Rosenberg; and George Narinian. *Membership and Organization*—Robert Ciampa, *Chairman;* Thelma Lezberg; and Joseph Seligman. *Finance Committee*—Arthur Thompson, *Chairman;* Margaret C. Shea; and Sister Mary Edward. *Minimum Standard Committee* — John T. Murphy, *Chairman;* John T. Karman; and Joseph Barry.

Mrs. Ethel Pierce, immediate Past President of the Massachusetts Society, heads the local committee making arrangements for the Annual Meeting of the ASHP. Other members include Ida Guber, Margaret C. Shea, Alfred Rosenberg, John T. Murphy, Ernest Lentini, Joseph Shibel and Edward Deeb.

Arizona Society

At the annual meeting of the Arizona Society of Hospital Pharmacists held in conjunction with the Convention of the Arizona Pharmaceutical Association, Mr. D. R. Zimmerman, Manager of the Hospital Division of E. R. Squibb and Sons, spoke on "ethyl vanillate." Also included on the program was a report on the Proposed Point-Rating Plan by Mrs. W. R. Brewer.

New officers of the Arizona Society elected to serve during the 1954-1955 term include: Harry Riddle of Pima County Hospital Pharmacy, Tucson, *President;* Harry C. Ferguson of Tucson Medical Center, *Vice-President;* Doris B. Hawkins, College of Pharmacy Staff, *Treasurer;* Anna Ward, Tucson Medical Center, *Corresponding Secretary;* and Frances McKinney, Good Samaritan Hospital, Phoenix, *Recording Secretary.*

Philadelphia Society

Members of the Philadelphia Society of Hospital Pharmacists sponsored a meeting at the Delaware Hospital in Wilmington, Delaware on May 20. This occasion was the opening of a new pharmacy department headed by Mr. J. Robert Cathcart. The highlight of the meeting was a tour of the pharmacy with an opportunity to view the new fixtures and equipment recently installed. This is a 400 bed hospital with a complete manufacturing program designed to provide the essentials of good pharmaceutical service.

In addition to the President of the national organization, Mr. Allen V. R. Beck, hospital pharmacists from New York, Baltimore, and Washington, D.C., attended.

"A Work Simplification Program," was the subject of a discussion by Mr. Lyman C. Whittaker, Assistant Director of the Delaware Hospital.

Texas Society

Twenty-five members of the Texas Society of Hospital Pharmacists attended breakfast which was held in conjunction with the annual convention of the Texas Hospital Association in Houston on May 19. This was the first meeting of the year under the chairmanship of the new President, Mr. Graydon Payne, Pharmacist at Shannon West Texas Memorial Hospital, San Angelo. Committees appointed to serve during the current year include the following: *Membership Committee*—Jack M Daniel, Providence Hospital, Waco, *Chairman*; Edwin Hibbs, Harris Hospital, Fort Worth; and Warren Smith, Hendrick Memorial Hospital, Abilene. *Committee on Program and Public Relations*—Adela Schneider, *Chairman,* Southern Pacific Hospital, Houston; John McClure, City-County Hospital, Dallas; and Doris Smith, State School Hospital, Austin. Total membership at the Texas Society as reported in the June issue of *The Bulletin of the Texas Society of Hospital Pharmacists* has reached a total of 56.

The following resolution was passed at a recent annual meeting of the Texas Society:

"Whereas the Texas Society of Hospital Pharmacists recognizes the debt of gratitude to the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for its continued support of this affiliated chapter and the Profession of Pharmacy as a whole.

Be it resolved, that the Texas Society of Hospital Pharmacists extends its sincere appreciation to the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for its many services."

Northeastern New York

At a recent meeting of the Northeastern New York Society of Hospital Pharmacists, Mr. Benjamin Teplitsky, Chief of Pharmacy Service, Veterans Administration Hospital, Albany, presented a preview of the results of a survey regarding drug detail personnel. The survey consisted of a questionnaire sent to chief pharmacists of hospitals throughout the country. Returns thus far have been received from hospitals representing every state in the U.S., as well as the Canal Zone and Alaska. The results also represent a total bed capacity exceeding 60,000, a pharmacist personnel of 292, and non-pharmacist personnel of 241.

The Northeastern New York Society met in Albany on Friday evening, May 21.

Greater St. Louis Association

The regular meeting of the Hospital Pharmacists' Association of Greater St. Louis was held at Missouri Baptist Hospital on April 13. New members introduced included Mr. Robert Lawson of DePaul Hospital in St. Louis.

During the business session, Norman Hammelman reported on progress made toward inaugurating a graduate course in hospital pharmacy at the St. Louis College of Pharmacy. Plans were also made during the meeting for presentation of a certificate for hospital membership in the Hospital Pharmacists' Association of Greater St. Louis.

New officers of the St. Louis group include *President* Ned Kinney; *Vice-President* Mrs. Florence Mueller; *Secretary* Jacquelyn Block; and *Treasurer* Sister Mary Ann Welch.

Greater New York Chapter

Members of the Greater New York Chapter of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS met at St. Mary's Hospital in Brooklyn on May 25. Sister Mary Etheldreda, Chief Pharmacist, conducted a tour of the Pharmacy Department showing recent additions and improvements.

New officers of the Greater New York Chapter elected to serve during the 1954-1955 term include the following: Sister Mary Etheldreda St. Mary's Hospital, Brooklyn, *President;* Sister Maria Joseph St. Joseph's Hospital, Far Rockaway, N.Y., *Vice-President;* Sister Virginia, Mercy Hospital, Long Island, N.Y., *Recording Secretary;* Sister Jeannette, Mary Immaculate Hospital, Jamaica, Long Island, N.Y., *Corresponding Secretary;* Sister Angeline, St. Mary's Hospital, Brooklyn, N.Y., *Treasurer.*

Akron Area Society

The Akron Area Society was host the second consecutive year to students from the Pharmacy Schools of the University of Pittsburgh, Duquesne, and Ohio State, on Tuesday and Wednesday, May 4 and 5.

Sixteen students attended with Mr. J. D. McEville, Instructor of Pharmacy Administration from the University of Pittsburgh, accompanying the group. Those coming from the University of Pittsburgh included C. G. Hampers, John Mysliwiec, Delores Malia and Ann M. Peters; from Ohio State: William J. Halushka, Robert James, Hillel Jaffe, Robert J. Theiss, Rocco Fumi, and Herbert Solomon; and Lou Cinda Butler, Ann Colabrese, Walter Kalyn, Robert Shilakis, Leslie Pailone, and Charles Weiss came from Duquesne.

"An Introduction to Hospital Pharmacy," was the theme of the twenty-four hour visit. Included were detailed tours of the hospital pharmacies of Childrens, Peoples, and City Hospitals of Akron, and a meeting of the Society. Mrs. Evlyn Gray Scott, Chief Pharmacist at St. Luke's, told the students of the organizational structure of the profession and served as one of the chauffer-guides.

Western New York Chapter

The Western New York Chapter of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, originally known as the Buffalo Chapter, has recently elected the following officers: *President* Sylvia Torre, Sisters of Charity Hospital, Buffalo, N. Y.; *Vice-President* Kathleen De-Claire, Memorial Hospital, Niagara Falls, N. Y.; *Secretary* Francis X. Sturner, Buffalo General Hospital, Buffalo, N. Y.; and *Treasurer* Alexius Norwicki (no address).

At a recent meeting plans were made to forward a special letter from the Society to hospital administrators in the area outlining hospital pharmacy policies and procedures.

There was considerable discussion concerning the status of associate members and the need for including medical service representatives as associate members whether they are pharmacists or not.

During the program Dr. Clifton Lord of the University of Buffalo staff spoke on "Responsibilities of Hospital Pharmacists."

Oregon Society

The Oregon Society of Hospital Pharmacists is planning a joint meeting with the Oregon Branch of the A. Ph. A. to be held in September. Included on the program will be a discussion of the functions of the hospital pharmacy along with slides.

Wisconsin Society

At the May 22 meeting of the Wisconsin Society of Hospital Pharmacists, Dr. Louis Busse of the University of Wisconsin spoke on the tentative plans for a hospital pharmacy course at the University. He also discussed plans for participation in the 75th anniversary of the Wisconsin Pharmaceutical Association.

New officers installed for the 1954-1955 term included Dell A. Olszewski, The St. Luke's Hospitals, Milwaukee, *President;* Edward Froncek, 2201 W. Oklahoma Ave. Milwaukee, *Vice-President*; and Ursula E. Heyer, Milwaukee Sanitarium, Wauwatosa, *Secretary-Treasurer.*

The meeting was held at the Madison General Hospital where Mr. Richard Henry is chief pharmacist.

Toledo Society

The April 13 meeting of the Toledo Society of Hospital Pharmacists was held at the Maumee Valley Hospital in Toledo with Miss Iris Hollman as hostess. Included on the program was a film entitled "Modern Nutrition," presented by E. R. Squibb and Sons.

The first fall meeting is scheduled with a dinner at 6:30 P.M. on September 9 at Mercy Hospital in Toledo. Sister Mary John, Chief Pharmacist at Mercy Hospital, Theodorsia Tucker, and Ruth Weaver will be in charge of the program.

Utah Society

Dr. George Osborne of the University of Utah School of Pharmacy was the principal speaker at the June 10 meeting of the Utah Society of Hospital Pharmacists. This was one of the educational meetings which are scheduled every second month. New officers installed at this time are President Mrs. Nellie Vanderlinde, St. Marks Hospital; Vice-President Thomas E. Marshall, Veterans Hospital, Salt Lake City; Secretary D. Wallace Thorup, Latterday Saints Hospital, Salt Lake City; and Treasurer Sister M. Rebecca Schmidt, St. Benedicts Hospital, Ogden. On retiring as president of the Utah Society, Mr. George Flashman presented the following message which is of interest to all those working with affiliated chapters:

"This is not to be so much in the nature of a report but rather an opportunity to express my appreciation to the membership for their loyalty and splendid cooperation throughout the past year.

"Just a year ago I was honored by becoming your first president. Since that time I feel that your association has accomplished a great deal in establishing and becoming a live and active organization.

"The committees that have been appointed have functioned 100 percent and have carried out the duties of their appointments with a thoroughness and dispatch that is indeed most commendable. Your Vice-President, Mrs. Vanderlinden and your Treasurer, Sister Rebecca, have been most generous in devoting their time and talents to the success of our Society. Your Secretary has done an outstanding job and is to be commended for the enthusiasm and efficiency with which he has performed the duties of his office. He has a tremendous responsibility and has worked diligently in taking care of the business of our Society.

"A most important result of our association has been the social contacts we have established with each other, a result of which a friendship has been cemented between all of us that is a valuable asset not only to ourselves but to our various hospitals. We have builded a solid foundation that will assure success if we will but carry on.

"We have been honored and recognized by our national SOCIETY have received many flattering comments from individual members throughout these United States.

"In conclusion permit me to again express my appreciation for your loyalty and unselfish support and admonish you to continue that same enthusiastic support to the incoming officers during the coming year.

"There is much to be done and a bright future is assured if you will but continue to carry on in the same manner during the years to come."

Hospital Pharmacists from Toledo, Ohio Visit Parke, Davis and Company.

as the president sees it

ALLEN V. R. BECK
Indiana University Medical Center, Indianapolis, Ind.

This is the last time I will have the occasion to contact you through the President's Page. There is a certain feeling of relief and also a feeling of uncertainty. This has been a good year for your SOCIETY, and we have made progress—not as much as we would like to make, but progress nevertheless.

The past year has opened my eyes to many facts about hospitals, hospital pharmacies, and especially hospital pharmacists, which I did not believe could exist. Some of these facts are exceptionally good, and I am sorry to say some are bad. We, as pharmacists in hospitals, have made great progress in the past twelve years—but we have a much greater way to go than we have gone, if we are to provide complete pharmaceutical service to our hospitals of the quality which we want to provide, and the quality the hospital has the right to expect.

There seems to be the feeling in many pharmacies that the service will render itself. This is absolutely false; the only way that a hospital can have adequate pharmaceutical service is to have a competent enthusiastic pharmacist doing a good job. Grover Bowles made an excellent statement at the recent Institute at Storrs, Conn., namely, that "opportunity often comes in the guise of hard work." This, I feel, is something which is lacking in many hospital pharmacies.

MEMBERSHIP

Your SOCIETY has limited facilities to assist each of you in your job. These facilities are used by many people, but not by everyone. The SOCIETY is you. We try to adequately represent hospital pharmacy on all occasions. I received copies of some letters Miss Niemeyer has written to several of the secretaries of local ASHP chapters. This particular set of letters mentioned the fact that each of these chapters has members who do not belong to the national organizations. This to me is incredible. The total number of local members not affiliated with the national associations, in the local chapters mentioned, was almost one hundred and fifty. How can we, as the national organization, represent hospital pharmacy in a true light unless everyone belongs and has the chance to express their opinion at the annual convention or the other meetings? Your SOCIETY wants to represent everyone in hospital pharmacy in the United States today. I would urge all members of affiliated chapters to make it their personal job to see that each of their members joins, or have joined, the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. This fact is becoming more important each day as we must have strength and be well informed, to be sure that everyone is rendering the best pharmaceutical service as economically as possible, consistent with sound therapeutic practice. This can only be accomplished by having each hospital pharmacist in the nation well informed on all phases of this segment of pharmacy, as well as a general knowledge of hospitals.

CONVENTION

This is convention time and we have a good program planned for you at Boston. We want everyone in Boston for the full week. Our sessions are Sunday, Monday and Tuesday, but the membership is expected to stay all week to attend the A.Ph.A. Sections and especially the meetings of House of Delegates. We have been very negligent in our attendance at these meetings in the past. The time has come for all hospital pharmacists to attend all the meetings and sessions at our A.Ph.A. Convention. Come to Boston with the firm resolution that you will start your week at the ASHP House of Delegates meeting on Sunday at 2 P.M. in the Statler Hotel, and finish the week of pharmaceutical education at the close of activities on Friday night. If you will spend this week absorbing as much pharmacy as possible, I am sure that You, Pharmacy, Hospital Pharmacy, and Your Hospital will benefit greatly. Of course the focal point of this entire week is the improvement of pharmaceutical service to the public and to the hospital patient.

Allen V. R. Beck

NEWS

1954 Administrator's Guide Issue — Hospitals

Hospital pharmacists will want to note the 1954 Administrator's Guide Issue of *Hospitals* which is published as part two of the June number. Of particular interest, is the section on pharmacy which is devoted to "Basic Drug Stocks for Nursing Units." Here are listed the factors to be considered in selecting stock drugs along with a procedure for establishing the standard drug stock. Supplementing this is an actual suggested standard drug list for nursing units.

In addition to the current section, hospital pharmacists will be interested in noting the summary index of past issues which appears on page 431 and lists references to hospital pharmacy.

Statistics of particular interest to pharmacists are as follows:

Of the 6,003 hospitals reporting, 3,245 have a pharmacy department.

Of a group of 3,534 hospitals reporting, 1,669 reported a pharmacy committee.

Of the 5,907 hospitals reporting 3,065 operate pharmacies, 2,097 employ full time licensed pharmacists and 3,551 employ full time pharmacists. Of this 5,907 reporting, 247 hospitals manufacture parenteral solutions.

Of a total of 4,370 hospitals reporting, 2,537 have a formulary.

Director of Accreditation Commission Appointed

Kenneth B. Babcock, M.D., has been appointed Director of the Joint Commission on Accreditation of Hospitals filling the position vacated by Edward L. Crosby who has become Executive Director of the American Hospital Association. Dr. Babcock is a native of Bath, New York and received his medical training in Michigan. He is the fellow of the American College of Surgeons and during recent years has worked in hospital administration. He became Assistant Director of Grace Hospital in Detroit in 1941 and Director in 1947.

Palmgren Accepts Missionary Post

Mr. James Palmgren, an active member of the Utah Society of Hospital Pharmacists, has received an appointment as a Methodist missionary in Southern Rhodesia. Mr. Palmgren was instrumental in organizing the Utah Society and played an active role in connection with the ASHP Annual Meeting which was held in Salt Lake City in 1953.

Internship Announced

Mr. Samuel Kohan, Chief Pharmacist at the City and County of Denver Hospital, Denver, Colorado has announced an internship beginning July 1, 1955. According to Mr. Kohan, the internship program will meet the *Minimum Standard for Pharmacy Internships in Hospitals* and will be for a twelve-month period. Applicants must have a Bachelor of Science degree in pharmacy from a fully accredited college of pharmacy. The remuneration will be $50.00 per month plus full maintenance. Those interested in such a program should write directly to Mr. Kohan, City and County of Denver, Department of Health and Hospitals, West Sixth Avenue and Cherokee Street, Denver 4, Colorado.

Parker Elected Secretary of Branch

Mr. Paul Parker, Chief Pharmacist at the University of Chicago Clinics, Chicago, and an Associate Editor of THE BULLETIN, has recently been elected Secretary of the Chicago Branch of the A.Ph.A. Mr. Parker spent several years at the University Hospital, Ann Arbor, Michigan prior to accepting his present position.

Internship Certificates Awarded

Three pharmacists completing the two year internship program at the Jefferson Medical College Hospital in Philadelphia were awarded intern certificates. Those completing the program including the work for a Master of Science degree in Hospital Pharmacy from the Philadelphia College of Pharmacy and Science were Mr. John Ray Marvel, Mr. Joseph V. D'Ambola and Mr. Edward A. Hartshorn. The certificates were awarded at a ceremony at the Jefferson Medical College Hospital with Dean Linwood F. Tice of

LEFT TO RIGHT: *John R. Marvel, Joseph V. D'Ambola, Edward Hartshorn, Dr. Hayward R. Hamrick, Dean Linwood F. Tice, Herbert L. Flack, and Thomas A. Manzelli.*

the Philadelphia College of Pharmacy and Science, and Herbert L. Flack and Thomas A. Manzelli, Director and Assistant Director of Pharmacy Service at Jefferson College Hospital, participating. The certificates were awarded by Dr. Hayward R. Hamrick, Medical Director of the hospital.

Hospital Dispensing in Wisconsin

The following article entitled "Hospital Dispensing" is taken from the *Wisconsin Druggist* (June 1954).

"A current trend affecting the profession of pharmacy as an integral part of community health service is the practice of hospitals

1. to encourage outpatient prescriptions to be filled in the hospital pharmacy
2. to supply patients on discharge with increasingly ample supplies of medication
3. to solicit the patient to return for refills of these prescriptions

"The cause and effect of these practices are readily apparent. First, hospitals are viewing these sales as additional sources of revenue; second, the effect, of course, is that local pharmacies are being denied these prescriptions and the opportunity to render their community pharmaceutical service.

"Hospitals enjoy a tax exemption under their non-profit status and therefore are supported by the business men and people of the community. To preserve this status the hospital must not enter into commercial ventures competitive to those of the community.

"Your association has been studying the problem and has met with representatives of the Wisconsin Hospital Administrators. The following policy has been adopted by the Wisconsin Pharmaceutical Association as indicative of pharmacy's stand:

Third Pan-American Congress

of Pharmacy and Biochemistry

SAO PAULO, BRAZIL

DECEMBER 1-8, 1954

SECTIONS OF THE CONGRESS

1. Physical and Physiochemical Methods in Pharmacy and Biochemistry
2. Analytic Methods in Pharmaceutical Chemistry and Toxicology
3. Organic compounds, natural or synthetic, of pharmaceutical or biochemical interest
4. General Biochemistry
5. Analytical Methods in Biochemistry
6. Bromatological and Nutritional Chemistry
7. Microbiology, Parasitology, and Hygiene
8. Pharmacodynamics
9. Pharmacotechnique
10. Botany, Phytochemistry, and Pharmacognosy
11. Teaching of Pharmacy, Biochemistry, and Correlated Sciences
12. History of Pharmacy and Biochemistry
13. Pharmaceutical Legislation and Deontology
14. Pharmaceutical and Biochemical Industries
15. Pharmacopoeias and Formularies

Registrations forms for the Third Pan-American Congress of Pharmacy and Biochemistry are available from Don E. Francke, Chairman, ASHP Committee on International Hospital Pharmacy Activities, University Hospital, Ann Arbor, Michigan.

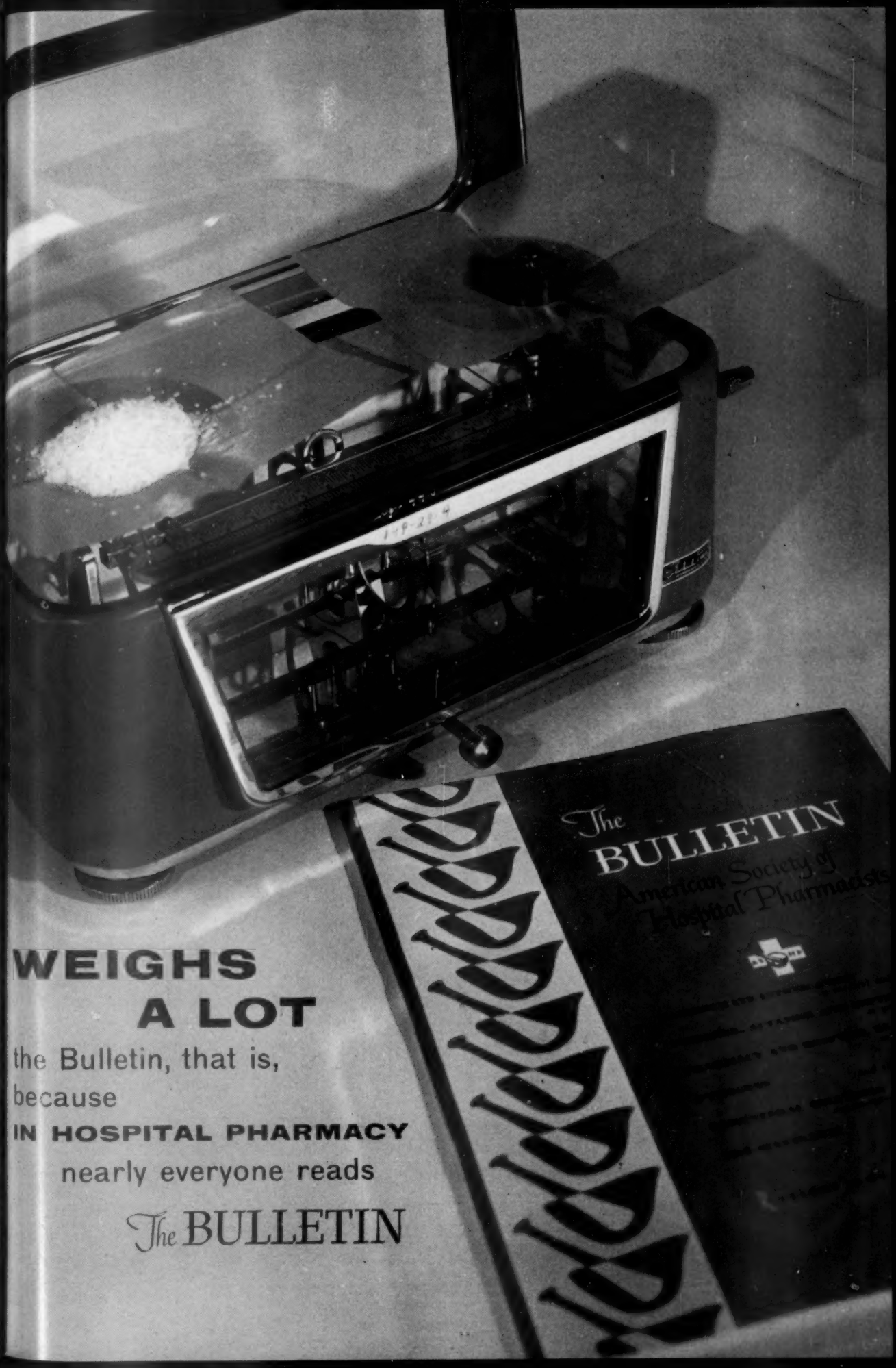
'A hospital being a tax-free, non-profit institution operated by the state or local government, and supplying pharmaceutical service through a hospital pharmacy, should not compete with private enterprise by dispensing medications to outpatients. This will not interfere with the supplying of pharmaceutical needs to a hospitalized patient.'

"It is the desire of your association to obtain the endorsement of the hospital pharmacist and administrators on this policy. We intend to continue in our efforts to secure this endorsement."

Hospital Accreditation—Pharmacy

Hospital pharmacists will be interested to note the "Possible Accreditation Survey Questions," as outlined by Dr. Jose Gonzalez, field representative of the American Hospital Association. The following questions, taken from the Administrators Guide Issue of *Hospitals* (Part II, June, 1954, page 400):

1. Is the pharmacy service under the direction of a pharmacist licensed by the state?
2. Is the pharmacist directly responsible to the administrator?
3. Is there a pharmacy or therapeutic committee of the medical staff?
4. Has a formulary been developed to standardize accepted drugs for use in the hospital, to choose items to be stocked, to evaluate clinical data concerning drugs requested for use in the hospital, to prevent unnecessary duplication in the stock of the same basic drugs and their preparations, and to recommend stock items for distribution in the nursing units?
5. Are there adequate internal pharmacy records maintained on all items purchased by the hospital?
6. Are all drugs for nursing units standardized as per recommendation of the pharmacy committee of the medical staff and the nursing staff?
7. Is there access to the pharmacy after working hours, and how is it controlled? What personnel have access to it?
8. Is there an efficient system of distribution of drugs to avoid unnecessary traveling to and from the pharmacy?
9. Are all drugs dispensed only on a written order signed by the prescribing physician?
10. Is the pharmacy provided with adequate storage facilities to meet federal and local regulations on alcohol, narcotics, flammables and biologicals?
11. Are narcotics properly accounted for and stored in adequate safe drawers or cabinets?
12. Are narcotics stored on nursing units in nonremovable metal strong boxes?
13. Are there any regulations concerning the indiscriminate use of antibiotics, cortisone, and ACTH?
14. Is there a check on the amount and distribution of barbiturates issued to the nursing units?
15. Are only U.S.P., N.F., N.N.R., and A.D.R. preparations used?
16. Is there an evidence of excessive use of proprietary medications?



WEIGHS A LOT

the Bulletin, that is,
because
IN HOSPITAL PHARMACY
nearly everyone reads

The BULLETIN

1955 Institute on Hospital Pharmacy

Plans are being made to hold the 1955 Institute on Hospital Pharmacy on the campus of the University of Chicago during the week of June 13. To meet the demand for meetings of this type, the sponsoring organizations are also considering the possibility of holding a second institute next year. Although plans have not yet been made, it is anticipated that one will be held in Atlanta. lanta.

Hospital Pharmacy As A Career

"Hospital Pharmacy As A Career" is the title of an article appearing in the March (1954) issue of *The Science Counselor*. The article, pointing out general considerations in choosing hospital pharmacy, is written primarily for high school students interested in entering this specialty. Included also is information about the internships currently offered.

Dr. George Archambault, President of the ASHP is author of the article. It is anticipated that reprints will be made available through the Division of Hospital Pharmacy of the A.Ph.A. and ASHP.

Murphy Presents Paper at AMA Convention

Mr. John T. Murphy, Chief Pharmacist at Massachusetts General Hospital, Boston, Mass., is co-author of a paper entitled "Some Aspects of Preparation, Sterilization and Preservation of Ophthalmic Medications," which was presented at the combined meeting of the Section on Ophthalmology with Associates for Research on Ophthalmology, at the recent convention of the American Medical Association held in San Francisco. Co-authors included Henry F. Allen, and Anita B. Mangiaracine, both of Boston.

MEETING DATES - 1954 and 1955

A.H.A.-APhA-ASHP Institute on Hospital Pharmacy—June 28-July 2, 1954, Storrs, Conn

American Pharmaceutical Association—August 22-27, 1954, Boston, Mass.

American Society of Hospital Pharmacists—August 23-24, 1954, Boston, Mass.

American Hospital Association—September 13-16, 1954, Chicago, Ill.

Maryland-District of Columbia-Delaware Hospital Association—November 8-9, 1954, Washington, D. C.

French Pharmaceutical Congress—October 4-9, 1954, Paris, France.

Pan-American Congress of Pharmacy—December, 1954, Sao Paulo, Brazil.

American Association for the Advancement of Science—December, 1954, San Francisco, Calif.

International Pharmaceutical Federation—September, 1955, London, England.

Institute on Hospital Pharmacy – June 13-17, 1955, University of Chicago, Chicago, Ill.

A.A.A.S. Meets in California

The American Association for the Advancement of Science and participating affiliated and associated societies will meet in Berkeley, California, December 26 - 31, 1954. The Pharmacy Subsection of the Section on Medical Science will hold four sessions with representatives from the following organizations participating: The American Pharmaceutical Association, the American Association of Colleges of Pharmacy, the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, and the American College of Apothecaries. Dean Glenn L. Jenkins, Purdue University School of Pharmacy, Lafayette, Ind., is secretary of the Subsection with Dr. Donald C. Brodie, University of California School of Pharmacy serving as local chairman. Representing hospital pharmacists will be Mr. Claude Busick, Vice-President of the ASHP and President of the Northern California Society. Mr. Lou Fischl, practicing pharmacist in Oakland, Calif., will represent the American College of Apothecaries.

At least one session will be devoted to hospital pharmacy and tentative plans are being made to hold a panel discussion on "The Pharmacy Internship Program."

Anyone wishing to present a paper at the Pharmacy Subsection is requested to send title and abstract not later than September 15 to either Dean Glenn L. Jenkins or Dr. Donald C. Brodie.

The AMERICAN SOCIETY OF HOSPITAL PHARMACISTS was accepted as an associated society of the A.A.A.S. in 1952. The parent organization, the American Pharmaceutical Association, is an affiliated society of the A.A.A.S. with representation on the Council.

Although hospital pharmacists participated in some of the programs prior to 1952, a specific time is now set aside for discussion of subjects relating to hospital pharmacy practice. In recent years Dr. George Archambault and Mr. Allen Beck have served as the representative of the ASHP to assist in planning the program.

NEW MEMBERS

JULY 1, 1954

CALIFORNIA

Beckerman, Joseph H., 6725 Gerald Ave., Van Nuys (A)
Courtney, Roy E., 529 S. Hollenbeck, West Covina (A)
Donley, Richard L., 1026 W. 94th St., Los Angeles
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Ondry, Helen D., 418 Summit Dr., Redwood City
Seibert, B. Stanley, 644 Cypress, Los Angeles
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DELAWARE

Segal, Julius, 1901 Delaware Ave., Wilmington

DISTRICT OF COLUMBIA

Burgess, James C., 60 Bryant St., N. W., Washington

FLORIDA

Finegan, Mrs. R. H., 3129 N. W. 33rd St., Miami

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Hori, Kei, 1319 W. Foster, Chicago
Streit, Rita, 2242 N. Seminary, Chicago
Szelak, John, Pharm. Dept., Univ. of Chicago, Univ. Clinics, Chicago

INDIANA

Gardner, Eugene E., 4507 Silver Lane, South Bend

IOWA

Burleson, Harold H., 326 - 7th Ave. N., Fort Dodge

KANSAS

White, Victor E., 1557 N. Market, Wichita

LOUISIANA

Sister Mary Annette McDonagh, 941 Margaret St., Shreveport

MARYLAND

Gladhart, Wesley R. Jr., Pharm. Dept., Johns Hopkins Hospital, Baltimore (A)

MASSACHUSETTS

Durkee, James J., Salem St., North Wilmington
Jeffrey, Louis P., 52 Dartmouth St., Everett (A)

MICHIGAN

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Haithco, William H., 2275 Wilson St., Saginaw
Rice, Joan C., 216 S. Fifth Ave., Ann Arbor

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Wheeler, Albert A., 1800 Charleston W., Las Vegas

NEW JERSEY

Greco, James, P. O. Box 172, Coytesville (A)
Lauderbach, Bertram S., Essex Co. Hosp. for Contagious Diseases, Belleville

NEW YORK

Diffenderfer, Donald L., Southern Area Hqs. & Munich Det., Med. Grp., 7779th Army Unit, APO 407, c/o P.M., New York
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Procopio, Thomas P., 452 Hawley St., Rochester (A)
Riemen, Herbert R., 284 Eden St., Buffalo

OHIO

Crocetti, Robert A., 924 Thomas Rd., Columbus
Freed, Joe F., 208 Locust St., Findlay

OREGON

Cotter, Evva H., 1745 N. E. 43rd, Portland

PENNSYLVANIA

Miles, James W., 459 W. 11th St., Erie
Weber, Albert F., 800 S. Duke St., York
Zang, Otto J., 105 S. Main St., Taylor (A)

SOUTH DAKOTA

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TENNESSEE

Stahl, Gerald M., 1047 N. Evergreen St., Memphis (A)

TEXAS

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Provenza, Josephine, 713 Axenue C, Galveston

VIRGINIA

Sutphin, Elwin C., 408 Poplar, Galax

WEST VIRGINIA

Sperry, Robert B., 205 Cross St., Beckley

WISCONSIN

Radke, Clarence T., 1157 N. 45th St., Milwaukee
Urdang, George, 457 Chemistry Bldg., Madison (A)

Publications Available

The following reprints which are of interest to hospital pharmacists are available from The Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution Ave., N.W., Washington, D. C.:

Comprehensive Bibliography on Hospital Pharmacy, 1951—$1.00.

Supplement to Comprehensive Bibliography on Hospital Pharmacy, 1953—$1.00.

Ten Years of the American Society of Hospital Pharmacists—$1.50.

The Formulary System in Hospitals (Editorial)—no charge for single copies.

Accidental Poisoning in Children by Bernard Conley (Reprinted from THE BULLETIN 11:102, Mar.-Apr.) 1954—25¢.